TECHNOLOGY DEPT.

NATIONAL PETROLEUM NEWS

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DETROIT

Arnold and Farish Testify In Synthetic Rubber Probe

WASHINGTON—Entry of an anti-trust consent decree against the New Jersey Standard for its 1929 patent deal with the German I.G. company was the trigger which fired synthetic rubber question into newspaper headlines. Page 3.

Assistant Attorney General Arnold, before Truman Committee of Senate, charged Jersey had hampered synthetic rubber development in the U. S. Page 3.

W. S. Farish, Jersey company president, denied this and other charges in testifying March 31 before Truman Committee. Page 3.

Jersey explains development of synthetic rubber process. Page 5.

Crude Prices Up In Pennsylvania

CLEVELAND—Principal purchasers of Pennsylvania grade crudes advance prices 25c a bbl. following action by OPA to raise ceilings. OPA holds out another 25c advance if production reaches 85,000 bbls. daily for sustained period of 3 months. Page 19.

Effect of 6% Hike On Oil Prices Told

ST. LOUIS—Oil men tell Office of Price Administration effects of 6% increase in rail rates on oil price structure at meetings here. Higher prices asked in Districts 2, 3, 4 and 5. OPA lawyer promises decision "as soon as we can." Page 12.

BULLETINS

CONSOLIDATE TRUCKS

HOUSTON — Texas Consolidated Transportation Co. has been formed to haul petroleum products by tank truck from refiners to distributors throughout Southwest, releasing tank cars for East Coast service. Company has 70 4000-gal. transport trucks ready now. Company plans later to make deliveries direct to service stations.

FOREIGN OIL POOL

WASHINGTON — A United Nations oil pool, at least insofar as anti-Axis countries are supplied by foreign subsidiaries of U. S. oil companies, was indicated in OPC Recommendation No. 38 calling upon certain companies with operations outside continental U. S. to pool transportation and terminal facilities to increase efficiency of distribution and use of tankers and barges. Recommendation was signed by Deputy Co-ordinator Davies March 24 and announced March 31.

U. S. CRUDE PRODUCTION

NEW YORK—Daily rate of U. S. crude production was higher again the week ended March 28 at 3,819,850 bbls., up 128,150 bbls. from the previous week, according to figures issued by American Petroleum Institute. Texas production increased 166,450 bbls. to 1,410,150 bbls. daily, while California dropped 44,000 bbls. daily to 627,000.

W.P.R.A. Meeting

Pictures and on-the-spot report of Western Petroleum Refiners Assn. meeting March 25 at St. Louis are carried in this issue, beginning on Page 17.

Refining Edition

Price Adjustment Needed if Yields Of Gasoline Drop

At present price levels for products, average Mid-Continent refiner's revenue per barrel of crude run would be cut more than 11c if he curtailed his gasoline yield 20% ..... Page R-97.

British Standard For Aviation 'Gas' Base Stocks Told

Knock ratings for rich mixture performance included in revised British specifications for 100-octane number fuels. Specifications for unleaded base stocks of 87 and 91 octane number fuels also included in NPN's report ..... Page R-102.

Gasoline Storage Safety Factors, Costs Discussed

How to estimate evaporation losses and other costs and select types of storage tanks for volatile products to meet today's conditions in handling larger volumes of aviation gasoline under war emergency conditions told ..... Page R-105.

NEWS BRIEFS

OPC okays plan to rush 3,000,000 bbls. of fuels to East. Page 21.

* * *

Texas orders most wells closed for 18 days in April. Page 19.

* * *

Tank car shipments reach high of 464,561 bbls. daily. Page 9.

* * *

Rails' maximum on hauls to East not reached yet—Pelley. Page 22.

* * *

'Plenty of reclaimed rubber for tires,' Cole group told. Page 9.

* * *

Maritime Commission orders 56 more tankers be built. Page 23.

* * *

Ethyl cuts tetraethyl lead price to 0.18c per cc. Page 18.

* * *

State regulatory authorities meets April 14 with OPC. Page 20.

* * *

Madison "class action" damage suit to be argued April 7. Page 14.

* * *

OPC opens up U. S. refining processes to Russians. Page 15.

* * *

April "gas" demand will show 2% drop, says Bureau. Page 8.

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OPA raises April tire quotas for eligible vehicles. Page 7.

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MERCHANDISING

What Oil Men Can Do to Keep Tank Cars Rolling 30

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At left is one of Oil's war slogans which all companies are urged to use in their advertising. For information, write: Petroleum Industry War Council, 712 Chanin Building, New York, N. Y.

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1213 W. Third St., Cleveland, O.

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New President of National Refining Started at Bottom of Ladder

Even tempered, soft spoken, broad shouldered 42-year-old Kenneth R. Proctor, National Refining Company's new president, is proud of the fact that he is a salesman and a graduate cum laude from the school of experience. Mr. Proctor succeeds Paul Ryan who resigned last June following injury in an air transport crash.

From territorial salesman to the head of his company was accomplished the "hard way" by Mr. Proctor. He has climbed National's ladder step by step through tireless work in every position he has undertaken.

Mr. Proctor was born in Indianapolis June 3, 1899, where he graduated from high school and attended business college. Before joining National Refining as a salesman in 1922, he was in business for himself as an accountant. Positions successfully held with National included field supervisor bulk plant manager, manager of company bulk plants, assistant division manager, division manager and vice-president in charge of sales. He was elected a director of the company on February 20 of this year, and became president on March 25.

Mr. Proctor is optimistic as to the future of the oil business, particularly that of his company. He sees advertising as coming into its own during these war years. During these days, he points out, dealers and jobbers are looking for more ways to keep their businesses healthy. They will make the fullest use of advertising now, he believes, whereas in normal times they took it as a matter of course.

Kenneth R. Proctor

Proctor has 4 hobbies: wife, daughter, business and golf. He claims to be the second best golfer in Ohio—if you start at the bottom of the list. But his associates warn you to be careful when betting with "Ken" on golf.

NATIONAL PETROLEUM NEWS

VOLUME 34 WEDNESDAY, APRIL 1, 1942 NUMBER 13

Jesse Jones and Ickes To Testify in Probe

WASHINGTON — Next witness after W. S. Farish, president of New Jersey Standard, before the Truman Committee will be Frank A. Howard, president of Standard Oil Development Co.

Later, Jesse Jones, federal loan administrator, will be called, followed, possibly, by Petroleum Co-ordinator Ickes.

Senate Probes Synthetic Rubber; Jersey Attacked; Farish Replies

Farish Replies

WASHINGTON — Many of the charges against New Jersey Standard were denied when W. S. Farish, president, appeared before the Truman Committee on March 31 to answer Assistant Attorney General Arnold's testimony on the Jersey company's patent arrangements and relations with I. G. Farbenindustrie, German chemical firm.

Truth of some of Mr. Arnold's statements was admitted by Mr. Farish, but he pointed out that Jersey had subsidiaries in Germany and other countries and that the U. S. was not at war when these events took place.

There were several lively interchanges between Mr. Farish and the committee. Hearing room was packed. Spectators and newspapermen sat forward in their chairs to hear the witness's testimony and watch the by-play.

Once Mr. Farish appeared downright angry when aspersion was cast on loyalty of dollar-a-year men from industry because many of them continue to receive company salaries while on loan to the government.

"In my opinion," Mr. Farish retorted, "this war we are fighting is a war of production. It is a war that can only be won by industry and labor working together. The government needs industry's brains to carry on this war. If you want to lose the war, take them (industrial men) from Washington. They are volunteers as much as anyone."

Clashes With Counsel

Another clash occurred when, after adjourning of the March 31 committee session, Mr. Farish approached a group of newspaper men clustered about Hugh Fulton, committee counsel. Mr. Fulton was "explaining" some of Mr. Farish's testimony.

Listening awhile, Mr. Farish apparently did not agree with Mr. Fulton's version of the facts.

Mr. Farish broke in, asking

(*Continued on page* 6)

Arnold Attacks

WASHINGTON — Standard Oil Co. (N.J.) was pictured as hampering development of synthetic rubber in the U. S. by Thurman Arnold, anti-trust chief, in his testimony before the Truman Committee of the Senate. Newspaper headlines throughout the country featured the sensational charges.

Prior to U. S. entry into the war, said Mr. Arnold in his testimony March 26 and 27, the Jersey company had turned over synthetic rubber data to German interests while withholding such data from American companies.

Mr. Arnold first appeared before the Truman Committee the day after announcement of the justice department's out-of-court settlement of anti-trust cases against the Jersey company and some of its officers for its patent deal with the I. G. Farbenindustrie, giant German chemical firm.

Rubber Patents Freed

Part of the settlement was that Jersey should provide for free public licensing—for duration of the war—for all patents owned by the company and all I.G. patents it controlled for synthetic production of rubber and gasoline.

"Freeing" of these synthetic rubber patents without going through a lengthy court trial was cited by Mr. Arnold as "justification" for the settlement that netted fines totaling $50,000 from a billion-dollar corporation.

Jersey's cartel arrangements with the German I.G., Mr. Arnold told the Senate committee probing into the national defense situation, "are the principal cause of our present shortage of synthetic rubber."

'DJ Dropped Charge'

Charges that Jersey had hindered or delayed U. S. synthetic rubber production drew fire from W. S. Farish, president of the company, in a statement March 27.

Because this charge was "wholly without foundation",

Hike Granted In Oil Prices On East Coast

NPN News Bureau

WASHINGTON — Higher prices for petroleum products on the East Coast were approved by Office of Price Adminisfration effective March 26.

The increases permitted had been requested for some time by the industry and Office of Petroleum Co-ordinator to offset higher costs of transportation into District 1 by tank car and other more expensive means than tanker. OPC, according to a statement of considerations

(*Continued on page* 10)

Stations Confused on L-70 Hours-of-Sale

NPN News Bureau

NEW YORK—Eastern gasoline curtailment order, L-70, isn't the headache that many people expected—at least not in the Greater New York area.

Gallonage quotas (roughly, 80% of December-January-February average, with seasonal adjustments) apparently have proved adequate for most service station operators. They are not limiting their regular trade, although curtailing transient customers. And with tire conservation reducing consumption, this seems to balance supply with demand in most instances.

But there are some protests from stations where trucks or other preferred consumers make up 90% or better of the gallonage. Order L-70 makes no provision for reimbursing stations for sales to preferred consumers—all types of sales, preferred and otherwise, must come out of the quota.

Many complaints have been voiced about alleged violations of the hours-of-sale provision. Most of them boil down to fact that the dealers complaining do not understand this provision of Order L-70.

Curfew Explained

Order L-70 does *not* require stations to close from 7 p.m. to 7 a.m., nor any other time, day or night. It simply says: "No service station within the curtailment area shall deliver to any person any motor fuel during more than 12 hours of any calendar day or during more than 72 hours of any calendar week (except to trucks, doctor's cars and other preferred consumers)."

So, a station may remain open 24 hours a day, 7 days a week, so long as it makes no sales to non-preferred consumers during a total of 12 hours daily, 72 hours a week.

That leaves a wide latitude for the station operator. And some operators have adopted ingenious schemes which, however, are still within the order. Some stations are staggering their hours, opening and closing so frequently that competitors can't keep track and assume that it is a violation.

Advocates of 7-to-7 closing of stations are entirely dissatisfied with the hours-of-sale provision and are renewing their efforts to obtain a mandatory provision on this.

Senate Group Hears Arnold's Testimony

(*Continued from page 3*)

Mr. Farish said that the Jersey company had declined to consider any out-of-court settlement of the anti-trust case unless this charge was eliminated from the complaint.

"The charge was withdrawn," Mr. Farish added.

Explaining the settlement, the Jersey company president said that to obtain "vindication" by a court trial "would involve months of time and energy of most of its officers and many of its employes. Its war work is more important than court vindication," he added.

Cases Filed at Newark

Two cases, one civil and the other criminal, were filed March 25 in federal district court at Newark, N. J., along with consent decree and *nolo contendere* pleas. Both cases were filed under the Sherman anti-trust law. Court accepted the settlement and imposed fines of $5000 each on the 10 defendants named in the criminal information.

Defendants in criminal case were: Standard Oil Co. (N. J.); Standard Oil Co. of N. J.; Standard Oil Development Co.; Standard Oil Co. of La.; Standard Catalytic Co.; Jasco, Inc.; Hydro Engineering and Chemical Co.; Walter C. Teagle, board chairman; W. S. Farish, president; and Frank A. Howard, president of the Development company.

Defendants in Civil Suit

Same defendants were named in the civil case, plus four others "sued as trustees." These latter four were listed as: P. L. Young, patent attorney with the Development company; William E. Currie, vice president of the Development company, and Walter Schaefer and Harold A. Koechling, assistant comptrollers of the New Jersey-incorporated Standard company.

The complaint, to which the consent decree was entered, charges that the defendants conspired with the German I. G. to "restrain trade and commerce in the oil and chemical industries throughout the world, including synthetic rubber and synthetic gasoline," according to a justice department announcement on March 25.

Continuing, the department's announcement said:

"The consent decree signed by the defendants provides for the free public licensing for the duration of the present emergency of all existing patents owned by the defendants and all I. G. patents over which the defendants have control required for the synthetic production of gasoline and of rubber.

"In addition, numerous other chemical products manufactured from a petroleum base and processes for the refining of petroleum are subject to compulsory royalty free licensing. After the termination of the present emergency the defendants are permitted to charge a reasonable royalty on the above products.

"The defendants are likewise enjoined from hereafter entering into any plans or program with I. G. save upon giving contemporaneous notice to the Department of Justice.

"An important feature of the decree is the requirement that the defendants provide with all licenses issued upon a royalty free basis under the decree complete know-how and technical information required for the use of the licensed patents.

"It is the belief of the Department of Justice that a direct result of this decree will be the freeing of all the synthetic rubber patents at present in this country, which originated with the defendants or with I. G., upon a royalty free basis to any American manufacturer who wishes to produce synthetic rubber. This covers both Buna and butyl patents."

Tells It in 13,000 Words

Assistant Attorney General Arnold enlarged on this explanation of the cases and read much of the "evidence" in a 13,000-word statement to the Truman Committee on his appearance, March 26 and 27.

"In general terms, the arrangement (between Jersey and I. G.)," Mr. Arnold told the committee, "was as follows:

"Standard Oil Co. of New Jersey (sic) desired a world monopoly in oil and synthetic gasoline. I. G. Farben was interested in chemicals. Each wanted to be free from the competition of the other and also from independent competition. They, therefore, agreed that in the chemical field, which included synthetic rubber, I. G. Farben would have control. To implement that agreement Standard Oil was to turn over any chemical processes to I. G. Farben—either the information or the patents—to any chemical processes which it discovered not directly connected with its oil production. This included even the right to sell in the United States. In return, I. G. Farben agreed to turn over to Standard Oil any patents or discoveries which directly concerned oil production, including synthetic gasoline. Each company gave the other a world monopoly insofar as they were able to convey it, with the exception that Germany reserved its own market in synthetic gasoline while Standard Oil gave Germany control of synthetic rubber in the United States.

"This was done by setting up two patent pools—one for synthetic rubber and other chemicals controlled by Germany, the other for synthetic gasoline controlled by Standard Oil.

"At the direction of the German interests Standard Oil refused to license independent producers in the United States for the production of synthetic rubber. It turned over all its discoveries to Germany, even though Germany declined to give them anything in return. The effect of this arrangement continued during the war and up to a short time shortly before the filing of the information and the decree against Standard Oil."

Arnold States 'Motive'

Throughout his testimony, Mr. Arnold reiterated (1) that the committee should not regard the Jersey company's "cartel" arrangements as unique because other big industrial concerns had allegedly done the same thing and (2) that these arrangements were "not entered into with any desire to aid or assist Germany."

"The sole motive," he added, "was an attempt on the part of the Standard Oil to get a protected market and to eliminate independent competition, and finally to restrict production in world markets in order to maintain that control."

Shortage in synthetic rubber, which he attributed to "suppression of independent experimentation, production and distribution by a cartel agreement," is in the limelight today because, he added, "the consumer realizes it more keenly than the shortage of other basic materials."

Reads from Letters

Supporting his charges, Mr. Arnold read from a number of letters, telegrams, memoranda and other documents which, he said, came from the Jersey company's files. In most instances, he did not read the entire document. Many times he quoted only an excerpt—a paragraph, a sentence or even a phrase lifted out and the quoted portions linked together with his own

'Trust Buster' Thurman Arnold Tells 'em

Thurman Arnold, assistant attorney general, caught by the camera as he starts a gesture to emphasize a point in his testimony before the Truman Committee

words. Some documents were dated in 1928.

Mr. Arnold's testimony was given in a loud, vigorous voice that carried to all corners of the large hearing room without the aid of amplifiers.

Row on row of newspapermen grinned their appreciation of the "show" as the witness inserted a witty side remark or gestured widely, highlighting his adjectives with sharp, indignant intonations.

Arnold's Charges Listed

Included among charges made in Mr. Arnold's testimony, briefly, were:

That the Jersey company had provided for carrying on of arrangements with I. G. throughout the war.

That the German company withheld buna rubber data from Jersey.

That Jersey delayed introduction of buna rubber, even after it had received "permission" from I. G. Farben.

That on its own synthetic rubber development, Butyl, Jersey has refused to license all but two of the rubber companies, with the exception of some specialty companies.

That Jersey failed to disclose full information as to Butyl when a U. S. Navy representative visited its plant in 1939.

That Jersey was unwilling, as late as January, 1942, to give the Indiana Standard samples of Butyl.

That in January, 1940 (4 months after the war started), Jersey was thinking of referring its South American and Japanese customers to the German I. G.

That in 1938, Jersey was considering building a refinery in Germany to make aviation gasoline from Ebano distillate.

That in August, 1941, the German I. G. company offered to purchase Jersey's Hungarian refinery for $24,000,000 in gold delivered at Lisbon but the offer was frowned upon by U. S. governmental authorities.

That early in 1941 Jersey's subsidiary in Brazil was still selling aviation gasoline to the "Littoria" (Italian Aviation Line).

Proposes 5-Point Plan

Concluding his testimony, Mr. Arnold urged a 5-point program to stop the "cartel system" in America which, briefly, included: (1) Government should encourage research with subsidies or otherwise; (2) Private research, like the Jersey company's, should not be discouraged but patent system should not be permitted to impede progress; (3) Register all patent license agreements; (4) Register all agreements with foreign industries; and (5) Provide for a "wide awake" investigating agency to enforce the Sherman anti-trust law.

Jersey Explains Development Of Synthetic Rubber Process

NPN News Bureau

NEW YORK—Origin of its process for manufacturing synthetic (Butyl) rubber and development of the fluid catalyst refining process, synthetic toluol for explosives, and 100-octane gasoline from the hydrogenation process, acquired in 1929 from the German I. G. Farbenindustrie, A. G., were told in a statement issued March 25 by Standard Oil Co. (N. J.) Full text of the statement, follows:

For more than 60 years, the Standard Oil Company of New Jersey has sent its representatives to sell oil products all over the world. They have brought back to this country not only the money paid for the products but everything new and useful in the oil business which they could find, new products which could be made from petroleum and new kinds of refining equipment. From Russia we got medicinal petroleum oil, from France cold cream, from Roumania vacuum stills.

Many important new things came from Germany. This statement is intended to make clear how and when these things were acquired and what was done with them.

In 1929, the Standard Oil Company of New Jersey purchased from the German I. G. Farbenindustrie, A. G., the largest chemical company of Europe, the basic process for the production of oil from coal by hydrogenation, together with a majority interest in all other processes the Germans had invented in the field of oil refining, and a minority interest in their processes for the production of chemicals from oil and gas raw materials. The purchase included all inventions that the Germans might make in these fields up to 1947.

Hydrogenation Discussed

Hydrogenation is one of the most important processes, scientifically and industrially, that has ever been developed. By hydrogenation coal can be combined with hydrogen to make either gasoline or heavier oils. Germany had but little petroleum of her own but with hydrogenation she was able to make oil from coal, of which she had an abundance. The process was expensive, but the Germans felt that they must have an indigenous oil supply, whatever the cost.

To Standard, the principal value in the hydrogenation process appeared to be that, through its use it became possible to convert low grade, heavy oils completely into higher grade oils, such as gasoline. Of course, the ability to convert coal into oil was also attractive to Standard. Coal was abundant in the United States. Hydrogenation appeared to defer indefinitely any possible oil shortage. Only a few years before, Standard had itself been short of oil, and the known oil reserves in the United States were limited.

Paid $30,090,000 to Germans

For control and an 80% net interest in this hydrogenation process, Standard paid the Germans approximately $30,000,000. The German company also gave Standard an 80% interest with full control outside of Germany of all other oil refining processes which it owned or might develop up to 1947. In return Standard gave the Germans an option on a controlling interest in any invention which it might make in the purely chemical field unrelated to the oil industry. In the field of processes which either might develop for the production of chemicals from oil, it was agreed that the originator would have a 5/8 interest with full control and the other party a 3/8 interest.

It goes without saying that in making this trade Standard was motivated solely by normal commercial considerations. Looking back, however, we can see that if Standard had deliberately set about in the peaceful days of 1929 to protect the future national interests of the United States, it could hardly have proceeded more effectively than to make this trade for hydrogenation and the related processes.

The facts are that a stream of inventions vital to the defense of the United States has flowed out of this transaction. For example, 100-octane gasoline, the efficient aviation fuel which is indispensable to the superior performance of America's military airplanes, was first made in the United States by hydrogenation.

Again, toluol, the raw material for the manufacture of TNT, the explosive most commonly used in munitions, comes today, so far as the United is concerned, mainly from "hydroforming" plants operated by American oil companies, using methods developed by Standard out of the I.G. hydrogenation process.

Fluid Catalyst Process

Another important invention, the "fluid catalyst process," developed by Standard and several other oil companies, is due in part to the help in catalytic chemistry which Standard obtained under the 1929 agreement. Fluid catalyst plants representing an investment of $100,000,000 have recently been authorized by the government for essential war production.

The vital item of synthetic rubber, so far as the United States is concerned will be made in large part by processes in which Standard acquired an

(*Continued on page* 26)

Passenger Car Tires from Butyl Rubber

Automobile tire shown here was made from Butyl (synthetic) rubber. New Jersey Standard "has hopes that it (Butyl) will fill an increasingly large role in the present emergency in supplying passenger cars with tires." First commercial production of Butyl will start late in 1942 *at Baton Rouge, La.*

Farish Takes Stand, Replying To Arnold

(*Continued from page* 3)
if Mr. Fulton's remarks were "part of the record."

Angrily, he challenged the committee counsel's right to comment on the testimony or exhibits.

He denounced Mr. Fulton's conduct as "unfair," waving his arm as he did so.

Returns to Stand Again

Mr. Farish returns to the witness stand again on April 1. His prepared statement indicates that he will flatly deny Mr. Arnold's charge that the Jersey company "tried to monopolize the patent rights it obtained from I. G."

"The fact is that Standard," Mr. Farish's statement said, "had a uniform policy of licensing all the I. G. processes which it controlled. So far as we can recall, every oil product and process mentioned in this hearing has been licensed broadly by Standard."

Denies Arnold's Charges

Replying March 31 to Mr. Arnold's statement that, as late as 1939, the Jersey company was engaged in business relations with Japan without knowledge of the U. S. government, Mr. Farish branded this as "entirely untrue."

Also branded as "untrue" was charge that after fall of France, Standard assisted German interests to build hydrogenation plants in occupied France.

"Unfounded" was Mr. Farish's comment that Standard made aviation gasoline shipments to German and Italian air lines in Brazil contrary to this government's wishes.

Mr. Farish then explained that as this country was not at war with Germany in 1938-39, Standard could not help aiding in erection of an aviation gasoline plant at Hamburg.

He also said that Standard had tried to sell to I. G. Standard's Hungarian properties for $24,000,000 in gold to be delivered at Lisbon, but that the U. S. Treasury disapproved. Questioned as to why Standard wanted to make this sale, Jersey's president said that his company figured anything they could realize now would be better than nothing as destruction of its properties in Hungary was expected as a result of this war.

On charges of disloyalty, Mr. Farish said:

"I preface my discussion by saying that any charges that the Standard Oil Company or any of its officers has been in the slightest respect disloyal to the United States is unwarranted and untrue. I repel all such insinuations with all the vigor at my command. I do so with indignation and resentment. Moreover I wish to assert with conviction that whether the several contracts made with the I. G. did or did not fall within the borders set by the patent statutes or the Sherman Act, they did inure greatly to the advance of American industry and more than any other one thing have made possible our present war activities in aviation gasoline, toluol and explosives and in synthetic rubber itself."

Co-operated with U. S.

He added that Jersey "has co-operated closely with the department (of state) in all matters of foreign policy."

Denying that Jersey gave the Nazis information on butyl rubber but denied this same information to American and British governments, Mr. Farish said:

"Butyl rubber was the outgrowth of research conducted, first co-operatively and then separately, by the German I. G. company and Standard in an effort to find a way to vulcanize a rubber-like product called vistenex which had originated with the I. G. company. Standard discovered that by adding a minute percentage of another ingredient and changing the process there could be produced a true rubber capable of being vulcanized. The raw materials for this product which we called butyl rubber were cheap, but it was difficult to make and its quality was bad. In 1938 soon after Standard had discovered this product, it reported it to the I. G. in the normal way pursuant to the research arrangement between the parties in the field of synthetic rubber produced from oil.

'Didn't Withhold Data'

"The allegation that the I. G. was at that time withholding technical information from Standard on German synthetic rubber and therefore Standard should not have lived up to its own commitments is untrue. I. G. was at the same time supplying Standard with much desired information on the production of raw materials for buna rubber from oil. The only thing I. G. was withholding was the detail of their government-sponsored program of producing buna rubber from coal in Germany. The facts are that the technical information necessary to proceed with the erection of plants and the production of buna tire rubber was available in this country in 1939. While the butyl rubber was recognized from the beginning to have commercial possibilities, it was obviously of no value to Germany's self-sufficiency program, because the main raw material for the manufacture is isobutylene, which comes from oil refining, is not available in Germany in the necessary large quantities. If it were available first use of it would be to make 100-octane gasoline, which the Germans were never able to make on a large scale for lack of the same type of raw material. The same situation applies in Italy.

"For the reasons stated the disclosure of the butyl rubber at its early state of development to the I. G. in 1938 was entirely consistent with the relation of the parties, and could not possibly have had any political or military implications of any kind. All exchange of information on butyl rubber was discontinued in January 1940."

Emphasizing his statement that "every oil product and process mentioned in this hearing has been licensed broadly by Standard", Mr. Farish is expected to say:

Results of 1929 Deal

"Immediately after the 1929 agreements were made the hydrogenation process, which formed the foundation of the agreements, was turned over by Standard to an American corporation, Hydro Patents Company, the stock of which was held by 18 American oil companies, Standard being only a minority stockholder. All 18 companies automatically acquired licenses for themselves, and the group obtained the complete right to license absolutely anyone, without the possibility of any veto power by Standard. That arrangement has been in effect ever since. A number of companies installed and operated hydrogenation plants for the manufacture of 100 octane gasoline. This company was set up by Standard because Standard itself did not wish to assume the responsibility which would go with control of a process so basic as hydrogenation. It thought that the oil industry at large should settle the policies, and the only protection Standard had for itself was the assurance of a reasonable royalty until 1947.

"On synthetic toluol, the essential process is one called 'hydroforming'. The basic patent was acquired by Standard until the I.G. contracts. Improvements were gotten up by several American oil companies working with Standard and sharing the royalties. From the outset the purpose of this co-operative development was to obtain a process not only for the use of the inventors but also for licensing to the industry generally, and this is supported by the fact that one of the members of the original group, the M. W. Kellogg Company, was not an oil refiner and could not possibly obtain any benefit out of the development unless the process were broadly licensed by him as an agent on commission.

Catalytic Cracking Aided

"A third process which has been mentioned is catalytic cracking. The first process of catalytic cracking was introduced commercially by a French group which was backed by two of the leading American oil companies, and for some time these two companies were the only ones to use the process. Another group of American and British companies undertook to develop a competing process, and, to obtain the necessary foundation of catalyst technique, approached the I.G. with suggestions for co-operation. I.G. advised that their patents in this field were controlled by Standard, whereupon Standard and I.G. both joined the group in question. The co-operative development between this large group of companies thus established has been highly successful, although the I.G. necessarily dropped out of it when the war in Europe broke out. The process known as the 'fluid catalyst process' was developed by Standard as a result of this co-operation with the companies named. This process is now one of the most important reliances of the country in the present war effort. It is being used by Standard and a large number of other companies under license."

In his testimony presented March 31, Mr. Farish said U. S. government was kept fully informed on Jersey's activities as to manufacture of toluol and synthetic rubber.

Kept On, Despite Jesse Jones

Mr. Farish is expected to say that in September, 1941, Rubber Reserve Corp. told Standard to suspend work on government's Baton Rouge butadiene plant for a year. But Jersey proceeded using its own money, he will say, and 3 months later, after Pearl Harbor, government told Standard to proceed. Here, Mr. Farish will point out that intervening 3 months had not been lost as Standard had proceeded on its own hook.

NPN Reports from WASHINGTON

News for ALL branches of the Oil Industry

NATIONAL PETROLEUM NEWS, Washington Bureau, 803-805 National Press Bldg. ● Telephone: NAtional 3478 ● Staff: Warren W. Burns, O. H. Knight

WPB Will 'Clear the Decks' For Synthetic Rubber Plants

WASHINGTON — War Production Board considers the rubber shortage so critical that it would give priorities to a synthetic rubber plant over a 100-octane plant.

WPB's position was outlined thus by William L. Batt, director of materials division and a member of the Allied materials board, before the Truman Committee on March 24.

Charles P. Clark, acting chief counsel of the committee, asked: "If you had to build an independent or individual refinery plant for butadiene and 100 octane at this point, the 100 octane would of necessity get preferential treatment, would it not?"

Butadiene Is First

"Not over butadiene for synthetic rubber," Mr. Batt said bluntly, "because WPB today believes as I stated and tried to make clear earlier, that the production of synthetic rubber is the number one requirement and I said that it would take first place over anything except a great emergency. In the order of importance, of course, butadiene and high octane needn't compete with each other, because they actually are going to be developed as nearly as possible together."

Referring to the combination refinery units which make both butadiene and 100-octane, Mr. Batt said WPB was "very optimistic" that production of these materials in the same unit would save considerable amounts of critical construction materials.

Butadiene, he said, is the bottleneck of the synthetic rubber program, requiring a longer time to make than either the polymerized material into which it is transformed or the actual synthetic rubber tire itself.

It Can Be Done, Batt Says

Disagreeing with Price Administrator Henderson, who said it would require a miracle to reach a synthetic rubber producing capacity of 600,000 tons by the end of 1944, Mr. Batt felt confident that this objective would be achieved.

Just the same, he was frank in admitting to the committee that it is a stupendous undertaking.

"We," he declared, "are embarking on a half billion dollar or a billion dollar project, creating the like of which the world has never seen."

Problems in obtaining materials for this job will be brushed aside, he asserted, because WPB "will not allow any shortage of materials to handicap this program if there is anything which it can do to facilitate the delivery of those materials."

While he did not agree with Mr. Henderson on the prospective success of the synthetic rubber program, Mr. Batt did concur, emphatically so, with the Price Administrator's pessimistic view of the rubber shortage.

Rubber Situation Is Serious

"Senator," he declared gravely in reply to a question, "the public, you and I are not going to get a tire for our own cars for the length of the emergency."

True, he said, a giant new industry will be producing synthetic rubber at the rate of 600,000 tons a year ere long, but this rubber is earmarked for war needs alone.

During the weeks following the Japanese attack, the gravity of the rubber situation became more apparent and Mr. Batt told the committee he personally went before the War Production Board early in March to urge that synthetic rubber plants "be given the right of way." They were, he said.

Incidentally, he said the B. F. Goodrich Co., a partner with Phillips Petroleum Co. in synthetic rubber, gave him a synthetic rubber tire in 1940 and that tire is still used on his daughter's car.

Allot Reclaimed Camelback For List B Passenger Cars

Camelback made almost wholly from reclaimed rubber will be allocated to tire renewal plants for recapping and retreading passenger car tires of List B vehicles, Price Administrator Hamm announced on March 29.

As a result, these tires should not be driven at speeds faster than 35 miles an hour, he said. They will last for about 5000 miles.

Save Steel for 100-Octane, WPB Urges Plate Users

Steel plate users are being asked by War Production Board to limit purchases to their most urgent requirements in order to save steel for 100-octane, synthetic rubber and other essential war needs.

C. E. Adams, chief of Iron and Steel Branch, said plate production in April will exceed 850,000 tons—another record—but demand is at least 50% greater than that.

OPA Ups April Tire Quota For Eligible Trucks, Cars

Tire rationing has been liberalized to a certain extent by Office of Price Administration.

April tire quotas—for the first time—permit eligible passenger cars on List B, set up by the camelback rationing order, to obtain renewed tires. Since recap rationing became effective on Feb. 19, List B has been somewhat of a stepchild. The users included in the list could get no renewed tires in February and none in March. (*For "List B", see p.* 14, *NPN Feb.* 18—*Ed*).

As a matter of fact, more recaps are available for April than were sold as replacement tires in April, 1941.

However, the combined quota of new and recapped tires for April will permit replacement at less than one-fifth the rate of last April.

April Quota is 101,636

April quota of new passenger car and motorcycle tires is 101,636, compared with 2,816,000 new tires sold for replacements last April. Recap quota is 470,317, compared with 433,000 replacements in April, 1941.

"Assuming that the sales in April, 1941, were made to meet normal requirements in keeping 30,000,000 passenger cars in operation, the quota releases for April of this year are at a rate that, if continued, would keep in operation only a little over 5,000,000 cars," OPA said.

April quotas included 285,977 new tubes for List A and B cars together, compared with 87,635 new tubes in March when none were made available to List B passenger cars.

Truck Quotas Higher

Improving weather conditions, which make commercial hauls more frequent, account for an increase in truck tire quotas, OPA said.

While passenger car quotas showed a tremendous decline in tires available, the April truck quotas of both new and recapped tires add up to almost three-fourths the number of new and recapped tires sold for replacements in April, 1941.

A total of 275,523 new tires and 246,442 recaps are available to trucks under the April quotas. In April of last year, 605,000 new and 98,000 recapped truck tires were sold as replacements.

"Later on," OPA said, "new tire stocks may be released more rapidly in relation to the entire quota, as there is a limit to the number of times a casing may be recapped economically. It is indicated that passenger car tires to sustain the nation's essential transportation must come more and more from new stocks on shelves and in storage as the tires now in service wear or are damaged beyond use as carcasses for recapping."

'Gas' Demand May Drop 2% During April

NPN News Bureau

WASHINGTON—April's total motor fuel demand is estimated by Bureau of Mines at 55,700,000 bbls., a 2% decrease from April 1941's actual demand.

"Even after discounting the abnormally high demand in April of last year, the April forecast is about 5,000,000 bbls. less than might have been expected if there had been no tire rationing or curtailment in civilian consumption due to re-adjustments in transportation", bureau said, indicating that except for military demand, drop would have been larger.

January's total demand was 52,000,000 bbls., or 10% over a year ago, while February increase was only about 3%. The bureau said:

"The relative increase in the total demand for other products in January 1942 was substantially greater than for motor fuel, and this differential may be further accentuated.

'Gas' Stocks High

"Currently, this situation has resulted in a high level of gasoline stocks with unbalanced distribution between districts, a sharp drop in crude runs to stills, a consequent reduction in crude demand and a large increase in crude stocks.

"Recovery from the present reduced level of crude demand will depend on the ultimate extent of the reduction in gasoline demand, on the success of efforts to shift refinery yields to meet the increase in the demand for fuel oils, and on the possibility of further sudden changes in the availability of world supplies of petroleum that might call for larger exports from this country."

April's gasoline production was forecast at 52,100,000 bbls., of which 1,300,000 bbls. will be benzol and natural gasoline. Broken down by refinery districts, bureau's figures were as follows:

District	Barrels (in thousands)
East Coast	6,290
Appalachian	2,130
Indiana-Illinois	11,700
Oklahoma	2,770
Kansas	3,040
Inland Texas	3,390
Texas Gulf Coast	11,540
Inland Louisiana-Arkansas	1,120
Rocky Mountain	1,460
California	7,150

Tire Shortage Hits Demand

Straight-run and cracked gasoline yield, estimated at 43%, applied to production of 47,470,000 bbls. gives crude runs of 110,400,000 bbls., or 3,680,000 bbls. daily. Estimate of foreign crude runs to stills is 3,200,000 bbls., bureau said.

Notwithstanding adverse

NPN's Washington Directory Of Oil Agency Headquarters

Following is a partial list and directory of governmental agencies in Washington dealing with matters affecting the oil industry: (List is as accurate as possible but is only tentative as room and phone numbers are constantly changing).
Abbreviations code: Rm for room; Ex for phone extension.

Office of Petroleum Coordinator

Interior Department (New Building) 18th and C. Sts., N. W., Phone No. Republic 1820.

Co-ordinator
Harold L. Ickes, Rm 6153, Ex 5000.
Deputy Co-ordinator
Ralph K. Davies, Rm 6654, Ex 623.
Assistant Deputy Co-ordinator
Robert E. Allen, Rm 6647, Ex 3334.
Co-ordinator's Staff
6th and 7th Floors, New Interior Bldg.
Special Assistants
George W. Holland, Rm 4446, Ex 4897.
Gordon M. Sessions, Rm 7519, Ex 2621.
J. Elmer Thomas, Rm 6420, Ex 4735.
Howard T. Mather, Rm 6624, Ex 4626.
H. A. Gilbert, Rm 6629, Ex 4418.
Production Division
Donald R. Knowlton, Rm 6647, Ex 4861
Paul M. Raigorodsky, assistant director, Rm 7425, Ex 4774-2059.
Ralph J. Schilthuis, assistant director, Rm 6642, Ex 2907-4689.
Refining Division
Wright W. Gary, director, Rm 6639, Ex 3233-4644.
Robert B. Cragin, assistant director, Rm 7416, Ex 3237.
Phillip M. Robinson, assistant director, Rm 7510, Ex 4786-87.
Max B. Miller, Chief Equipment Procurement Section, Rm 3548.
Transportation Division
Maj. J. R. Parten, director, Rm 6627, Ex 3557.
Marketing Division
John W. Frey, director, Rm 6623, Ex 4646-7.
Paul A. Best, assistant director, Rm 6625, Ex 3518.
D. C. Arnold, head of Asphalt Section, Rm 2512, Ex 2787.
Materials Division
William F. Huff, director, Rm 7318, Ex 4585.
Sturgis Stentz, assistant director, Rm 7316, Ex 4622, 4623.
Research Division
Edward B. Swanson, director, Rm 7311, Ex 649.
Oliver S. Ambrose, assistant director, Rm 7317, Ex 4778-4785.
Conservation Division
Everett Lee De Golyer, director, Rm 7514, Ex 4459.
Legal Division
J. Howard Marshall, chief counsel, Rm 6649, Ex 4100.
Robert E. Friedman, associate chief counsel, Rm 6426, Ex 668.
David M. Hudson, associate chief counsel, Rm 6422, Ex 793.
OPM Priority Consultant
James E. Hughes, Rm 7340, Ex 4616-17.
Executive Officer
Stanley W. Crosthwait, Rm 6415, Ex 4363.
Information Division
Herbert A. Yocom, director, Rm 7513-15, Ex 3844, 4650-3844.
Petroleum Supply Division
Robert Lee Minckler, director, Rm 4448, Ex 4834.
R. C. Sauer, assistant director, Rm 7410, Ex 4867.
Foreign Division
James T. Duce, Rm 7444, Ex 2968.
Wm. D. Crampton, associate director, Rm 7452, Ex 4788-4891.
C. S. Snodgrass, associate director, Rm 7450, Ex 4789.
F. Willard Bergen, executive secretary, Tanker Control Board, Rm 7510, Ex 4744-4437.
Receptionist
Mrs. Rosalie E. Reid, Rm 6635, Ex 3429-4820.
Liaison
Gen. Walter B. Pyron
Liaison agent between Army Department and OPC. Phone RE 6700, Ex 6044, Rm 3062, Munitions Bldg., Constitution Ave. between 19th and 21st Sts.
Guy Holcomb
Head, Small Business Section, Department of Justice. Phone RE 8200, Ex 687, Rm 3503.

War Production Board

Petroleum Machinery Section, Special Industry Machinery Branch—Temporary Bldg. E, Third Floor, Seventh Wing, Phone Republic 7500, Ex 3441.
Dr. J. T. Sanders, chief of the section, Ex 5741.
John W. Choates, refinery equipment, Ex 5751.
William L. Clark, production machinery, Ex 5751.
E. B. Miller, production and refining equipment, Ex 5751.
M. A. Willner, production and transportation, Ex 5751.
Oil Section—New Social Security Bldg., Rm 4613, Phone Republic 7500.
Dr. Walter Whitman, petroleum consultant, Rm 2041 Temporary R. Bldg., Ex 6310.
C. C. Monrad, assistant, Rm 2434 Temporary R Bldg., Ex 2983.

Office of Price Administration

Temporary D Bldg., 4th and Independence Ave., Phone Republic 7500.
Leon Henderson, administrator, Rm 46, Ex 5586
Dr. J. K. Galbraith, assistant administrator in charge of price division, Rm 258, Ex 5203.
George Doffing, price executive of fuel section, Rm 2530, Ex 5388.
Joseph H. Salmon, petroleum division unit chief, Rm 2703, Ex 6376.
Robert Collacott, head of refined products division, Rm 2705, Ex 6636.
Dr. Walter Voskuil, chief of research, Rm 2721, Ex 6370.
Harry R. Booth, legal adviser, Rm 1604, Ex 6359.
Watson B. Joyes, consultant in crude oil division, Rm 2717, Ex 4403.
Joel Dean, handling gasoline rationing plans, Rm 1048, Temporary S. Bldg., Ex 71322.
U. S. Tariff Commission, 7th and F. St., N.W., Phone National 3947.
Petroleum Accounting Section
Kenneth Stone, chief, Rm 142, Ex 123.

Office of Defense Transportation

Interstate Commerce Commission Bldg., Constitution Ave. & 12th St., N. W. Phone REpublic 7500.
Joseph B. Eastman, director, Rm 5140, Ex 3527.
Fayette B. Dow, assistant on pipelines, tank cars, tankers and trucks, Rm 5132, Ex 3536.
J. G. Scott, counsel, Rm 5418, Ex 2460.
Motor Transport Division
John L. Rogers, director, Rm 4211, Ex 2297.
Sam F. Niness, chief of petroleum carrier section, Rm 4221, Labor Bldg., Ex 6351.
W. T. Cumming, chief of vehicle maintenance section, Rm 4213, Labor Bldg., Phone EXecutive 2420, Ex 591.
T. L. Preble, consultant, vehicle maintenance section, Rm 4213, Labor Bldg., Phone EXecutive 2420, Ex 591.
Gavin W. Laurie, consultant, vehicle maintenance section, Rm 4213, Labor Bldg., Phone EXecutive 2420, Ex 591.
R. D. Thomas, chief of tire maintenance section, Rm 4209, ICC Bldg., Ex 2529.
H. H. Kelly, chief of allocation and materials section, Rm 4326, Labor Bldg., Ex 5530.
Leon F. Banigan, assistant to Kelly, Rm 4326, Labor Bldg., Ex 4326.

Congress

Congressional Oil Investigating Committee
Rep. Wm. J. Cole, Jr., chairman, New House Office Bldg., Rm 1535, Ex 699.
Senate Oil Shortage Investigating Committee
Sen. Francis Maloney, chairman, Senate Office Bldg., Rm 354, Ex 1196, phone National 3120.

Petroleum Industry War Council

William R. Boyd, Jr., Chairman, Suite 700B Shoreham Hotel. Phone No. ADams 0700. Allan H. Hand, secretary-treasurer.

U. S. Maritime Commission

Commerce Department Phone No. Republic 6620.
B. B. Jennings, director of tanker operations, War Shipping Administration, Rm 4309, Ex 87, 88, 89.

weather conditions in February, bureau says motor fuel demand was less than expected and "indicates a greater and more immediate effect of tire rationing than was anticipated".

Bureau also points out that until the war is over, January probably is the last month that such a large gain as 10% will be shown in total motor fuel demand, as tire conservation did not really get going until February.

An increase of 7,000,000 bbls. was shown in finished and unfinished gasoline inventories during January, the total on Jan. 31 being 101,213,000 bbls., or 11,000,000 bbls. over last year's level.

Fuel oil data, which bureau had available, indicated that demand for heavy grades continued to run at least 10% over last year and distillate grades "may have been up 20%", bureau said.

Crude Runs Steady

Crude production during January 1942 and December 1941 was virtually the same, bureau added, with January's daily average output totaling 4,137,000 bbls., or 1000 bbls. less than the previous month. Texas' daily increased production during January of about 53,000 bbls., almost counterbalanced drops shown in other important states, namely Oklahoma, Illinois, and Kansas. A small decline was recorded in California.

Production stood almost stationary and crude runs to stills showed the first large decline in many months, so that crude stock increase was greatly accelerated.

Crude capacity was 4,667,000 bbls., as indicated by Bureau of Mines monthly statement, resulting in operating ratio of 82%, compared with 88% in December and 83 in January, 1941.

Crude Stocks Drop Slightly

WASHINGTON—U. S. domestic and foreign crude oil stocks totaled 261,724,000 bbls. March 21, down 339,000 bbls. from previous week, Bureau of Mines reports.

OPC Hikes Michigan Quota

WASHINGTON—Michigan's April production quota for crude and other petroleum liquids has been hiked 10,000 bbls. daily, to 60,200 bbls. daily, by OPC to help relieve tight East Coast supply situation.

'Plenty of Reclaimed Rubber For Tires,' Cole Group Told

WASHINGTON—Cole oil investigating subcommittee plans to test a reclaimed rubber tire as a result of the charge by an independent rubber dealer and trader that there is no shortage of rubber, and that reclaimed rubber can provide all the new tires and all the camelback for tire renewal that the public will need for the duration of the war.

The charges were laid before the committee on March 27 by Elliot E. Simpson, director of the Drexsage Rubber Co., New York City, who described the company as an independent rubber dealer associated with smaller tire manufacturers.

Under intense and sometimes hostile questioning by committee members after he uttered the remark, Mr. Simpson agreed to furnish the committee with all the reclaimed tires they wanted with complete information on the ingredients and the name of each man who worked on the tire. He claimed the tires would be good for about 5000 miles of driving at speeds between 40 and 45 m. p. h.

Chairman Lea of House Interstate and Foreign Commerce Committee, acting as chairman of the Cole subcommittee in the absence of Rep. Cole, said the Bureau of Standards probably would be asked to make the test.

"Homes are 'Plantations'"

Asserting that the rubber program is controlled "by vested rubber interests" who desire to kill competitors of the large rubber companies, Mr. Simpson estimated the scrap rubber stockpile of the nation at 10,000,000 to 20,000,000 tons. Homes, he said, are "rubber plantations in themselves" with discarded tires, tubes, hot water bottles, garden hose and many other items.

In the last 20 years, he said, nearly 70,000,000 tons of finished rubber goods have been manufactured and only 2,832,000 tons of scrap rubber were reclaimed. He said it took 750,000 tons of crude rubber to manufacture about 7,000,000 tons of finished goods last year.

He said estimates of scrap rubber showed that in oil fields and other areas of Oklahoma nearly 100,000 tons could be found.

Hits Dollar-a-Year Men

Urging the immediate dismissal of dollar-a-year men with rubber company connections, Mr. Simpson asserted that there is "more than enough rubber to take care of every public and defense need and an investigation by the Congress will ascertain this immediately."

He said the American people "are going to drive anyhow" and that it is, therefore, better to give them reclaimed tires good for 5000 miles than to permit them to use patched up scrap tires good for only 400 miles or so which will blow out and endanger countless lives.

Claims Rubber is Available

Scrap rubber is available in sufficient quantities to retread every tire in U. S. for the duration, Mr. Simpson said. The only crude rubber that would be needed, he added, would be 2 oz. per tire to stick the camelback tread to the cushion of the tire. He said this crude rubber could come from crepe sole shoes, each pair of which contains from 1 to 1½ lbs. of pure crude rubber.

An official spokesman said the War Production Board refused to comment on Mr. Simpson's charges and would rather stand on the estimates of Price Administrator Leon Henderson (*NPN March* 11, *p.* 9).

FTC Orders Halt To Use of 'Penn' By Chicago Firm

WASHINGTON—A cease and desist order against Associated Motor Oils, Inc., trading as Associated Products Co., 2313 South LaSalle St., Chicago, for alleged misrepresentation in connection with the sale of its products, has been issued by the Federal Trade Commission, FTC announced March 27.

FTC statement, in part, said: "Prohibited by the order are the representations that Associated Motor Oils, Inc., owns or operates a refinery; that any oil product sold by the respondent which is not composed in its entirety of oils produced in the Pennsylvania fields is a pure Pennsylvania Motor Oil; and that the respondent's oils and greases have been tested and approved by a disinterested laboratory, unless such is a fact.

"The order directs the respondent to cease and desist from the use of any insignia or emblem in advertising or on containers or labels which simulates the insignia or emblem of the Pennsylvania Grade Crude Oil Assn., and from the use of the word 'Pennsylvania' or any abbreviation or colorable simulation thereof to describe any oil product not composed wholly of oil derived from the Pennsylvania fields. The order provides, however, that in the case of a product composed in part of oil from the Pennsylvania fields and in part of oil derived from other fields, the word 'Pennsylvania' or its abbreviation may be used as descriptive of the oil derived from the Pennsylvania fields if there are used in connection therewith in letter of at least equal size and conspicuousness, words or figures truthfully designating the percentage of oil in the product which is derived from the Pennsylvania fields."

Tank Cars to East Top Previous High

WASHINGTON — Eastward tank car movement of petroleum and petroleum products, for week ended March 21, continued to climb, reaching a new high of 464,561 bbls. daily, Office of Petroleum Co-ordinator has announced.

This is the third consecutive week that a new high has been chalked up. Previous March 14 record was 439,200 bbls. daily.

Reporting companies loaded a total of 14,453 cars week ended March 21, compared with 13,664 cars the previous week. Shipments by reporting companies were:

Atlantic Refining—1202 cars; Cities Service—556; Conoco—203; Gulf—1128; Hartol—52; Pan-Am—1232; Petrol Corp.—179; Pure Oil—143; Shell—992; Sinclair—1454; Socony-Vacuum—1839; Kentucky Standard—104; New Jersey Standard—2703; Sun—810; Texaco—1658 and Tide Water—198.

Breakdown of car movement by products was: crude, 6953; gasoline, 2951; kerosine, 703; fuel oil, 3216; lubricating oil, 146; asphalt, 74; naphtha, 36; residual, 324; liquefied petroleum gas, 7; wax, 3; and miscellaneous, 40.

Hike Granted In Oil Prices On East Coast

(*Continued from page* 3)

released by OPA along with amendments authorizing the price advances, had asserted that unless the oil industry is permitted to recover its extraordinary transportation costs, the program for meeting increasingly by tank car the military and civilian demands for products on the East Coast would "collapse."

(*Editor's Note: For listing of price increases permitted by OPA, see texts of amendments to Revised Price Schedule No.* 88 *and Temporary Maximum Price Regulation No.* 11 *on this page.*)

OPA's statement of considerations emphasized repeatedly that the increase permitted was of an "interim character"; that OPA plans further investigation to determine by its own methods the extra costs involved in shipping products to the East by rail, truck, barge and pipeline.

While eastern companies participating in the plan to share extra transportation costs and additional revenue accumulating from the higher prices pursuant to a plan drawn up in accordance with OPC Recommendation No. 33, amended, will be required to file reports with OPA, the statement of the price office said OPA's approval of the increase "will not constitute approval by this office either of the pooling arrangement or of the determination of 'expenses to be included under plan and method of determining extra transportation expenses' ".

Oil Men Serve WPB for Dollar-A-Year

NPN News Bureau

WASHINGTON—Included among lists of 535 dollar-a-year men with War Production Board, made public by WPB, were names of fourteen with oil industry connections. Names of these oil men, with WPB position and oil connection, were listed by WPB as follows:

Robt. L. Blaffer	District Co-ordinator Production, Contract Distribution	Chairman of Board and Treasurer, Humble Oil & Refining Co., Houston, Tex.
Guy B. Bogart	Industrial Relations, Labor, Labor Relations	Vice-Pres. & Gen. Mgr., Indian Refining Co., Lawrenceville, Ill.
Donald Hoose	District Rep., Labor, Training within Industry	Asst. Mgr. Industrial Relations, Texas Co., New York, N. Y.
Wm. L. James	Asst. Director, Purchases Divn., Equip. & Supplies Procurement, Advisory.	Purchasing Agent, Standolind Oil & Gas Co., Tulsa, Okla.
Henry W. James	District Representative, Labor, Training within Industry	Mgr. Industrial Relations, Atlantic Refining Co., Philadelphia, Pa.
James McPherson	Deputy Director, Purchases	Director, California Arabian Standard Oil Co., San Francisco, Calif.
Joseph R. Taylor	Asst. Bureau Chief, Industry Operations, Bureau of Industry Branches.	Socony-Vacuum Oil Co., New York, N. Y.
Ralph Wolf	Principal Industry Specialist, Materials Division, Chemical Branch.	Asst. Director of Synthetic Rubber Laboratory, Standard Oil Development Co., Westfield, N. J.
James E. Auten	Technical Asst., Production Division, Tools Branch.	Barber Asphalt Corp., Plainfield, N. J.
H. W. Dodge	Consultant, Materials and Supply, Materials Division, Office of Deputy Director.	Vice Pres., Texas Co., New York, N. Y.
George C. Gibbons	Principal Industrial Specialist (Petroleum), Bureau of Industry Operations, Salvage Branch.	Texas Mid-Continent Oil and Gas Assn., Dallas, Tex.
Thomas B. Slick	Asst. Stockpile Analyst, Materials Division, Stockpile & Shipping Branch.	Mgr., Slick Urschel Oil Co., San Antonio, Tex.
W. P. Edmunds	Consultant, Labor Division, Labor Relations Branch	Standard Oil Co. of Ohio, Cleveland, Ohio.
Elmer H. Weaver	Consultant, Petroleum, Bureau of Industrial Conservation, Substitution Branch.	Asst. Mgr. Purchases, Union Oil Co. of Calif., Los Angeles, Calif.

(*Editor's Note: At least one of the above listings is incorrect since R. L. Blaffer retired some time ago from his position as chairman of board and treasurer of Humble*).

Texts of OPA Amendments Authorizing Price Hikes

See News Story Page 3

WASHINGTON—Following are texts of amendments to Office of Price Administration's Revised Price Schedule 88 and Temporary Maximum Price Regulation No. 11, permitting price increases for refined products in the District 1 area.

TITLE 32—NATIONAL DEFENSE
CHAPTER XI—OFFICE OF PRICE ADMINISTRATION
Part 1340—Fuel

Amendment No. 4 to Revised Price Schedule No. 88[1]—Petroleum and Petroleum Products

A statement of the considerations involved in the issuance of this Amendment has been prepared and is issued simultaneously herewith.[2]

A new paragraph (f) is added to 1340.154, a new subparagraph (6) is added to 1340.159(c) and a new paragraph (e) is added to 1340.158A as set forth below. Section 1340.159 (c) (2) **Eastern Seaboard** and 1340.159 (c) (3) **Fuel Oil** are amended to read as follows:

1340.154 Records and Reports:

* * *

(f) Each person participating in the pool established under Recommendation No. 12, as amended[3], of the Office of Petroleum Coordinator for National Defense shall submit to the Price Administrator within fifteen days after March 26, 1942, a certified statement of the volume of sales and applicable revenue, classified by products, and the extra expenses incurred from the date of that person's entrance into the pool through February 28, 1942 in the transportation of petroleum and petroleum products to or in the States of Connecticut, Delaware, Florida east of the Apalachicola River, Georgia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Pennsylvania, Rhode Island, South Carolina, Vermont, Virginia, West Virginia and in the District of Columbia by railroad tank car or other alternative means of transportation, or any combinations thereof, over transportation by tanker under the applicable rates established by the United States Maritime Commission; and each such person shall submit prior to the 30th day of each month thereafter supplementary statements of such sales, revenue and expenses for each preceding month. All persons participating in the pool referred to above shall submit jointly to the Price Administrator within thirty days after the effective date of Amendment No. 4 an audit, broken down by persons prepared and certified to by a firm of auditors and accountants of the volume of sales and applicable revenue, classified by products and the extra expenses referred to above incurred in compliance with Recommendation No. 12, as amended, from September 4, 1941 through February 28, 1942, and shall submit prior to the thirtieth day of each month thereafter supplementary audits of such sales, revenue and expenses broken down by persons, for each preceding month.

[1] 7 F.R. 1371, 1798, 1799.

[2] The statement of considerations has been filed with the Division of the Federal Register.

[3] 6 F.R. 5538.

1340.159 **Appendix A: Maximum prices for petroleum and petroleum products.**

* * *

(c) **Specific prices.**

* * *

(2) **Gasoline**

* * *

Maximum prices for gasoline on the Eastern Seaboard.

Eastern Seaboard. The maximum prices for gasoline sold in the States of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Pennsylvania, Rhode Island, South Carolina, Vermont, Virginia, West Virginia, and in the District of Columbia shall not be in excess of .8 of a cent per gallon above the prices in the above States and the District of Columbia on October 1, 1941. Such maximum increase of .8 of a cent per gallon shall apply to the communities in Maryland and Virginia adjacent to the District of Columbia in addition to the increase provided for those communities below. The maximum prices for gasoline sold in the State of Florida east of the Apalachicola River, and in the State of Georgia shall not be in excess of .5 of a cent per gallon above the prices in the above States on October 1, 1941.

* * *

(3) **Distillate fuel oils:**

(i) The maximum prices in the States of Connecticut, Delaware, Florida east of the Apalachicola River, Georgia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Pennsylvania, Rhode Island, South Carolina, Vermont, Virginia, West Virginia, and in the Distrtict of Columbia for distillate fuel oils, comprising kerosine, tractor fuel, range oil, Nos. 1, 2, 3 and 4 fuel oils, gas house oils and distillate Diesel fuel oils, shall be not more than .4 of a cent per gallon in excess of the maximum prices that would otherwise govern under Section 1340.159 (b) (1)-(3).

(ii) **Maximum tank wagon prices for No. 2 fuel oil:**

	Cents per gallon
Tank wagon area:	
Washington, D. C.	8

* * *

(6) **Residual fuel oils:**

(i) The maximum prices in the States of Connecticut, Delaware, Florida east of the Apalachicola River, Georgia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Pennsylvania, Rhode Island, South Carolina, Vermont, Virginia, West Virginia, and in the District of Columbia for residual fuel oils, comprising

Nos. 5 and 6 fuel oils, Bunker C, Navy grade and residual Diesel fuel oils, shall be not more than 20 cents per barrel in excess of the maximum prices that would otherwise govern under Section 1340.159 (b) (1)-(3), except that at the points named in (ii) below the prices there specified shall be the maximum prices.

(ii) **Maximum prices for Bunker C and No. 6 fuel oils on the East and Gulf Coasts in cargo and barge lots F.O.B. refineries and terminals (ex lighterage).**

Location of refineries	Maximum price per barrel
Albany, N. Y.	1.75
New York, N. Y.	1.55
Philadelphia, Pa.	1.55
Baltimore, Md.	1.55
Norfolk, Va.	1.55
Portland, Me.	1.55
Boston, Mass.	1.55
Providence, R. I.	1.55
Charleston, S. C.	1.50
Savannah, Ga.	1.50
Jacksonville, Fla.	1.50
Tampa, Fla.	1.45
New Orleans, La.	.85

Maximum differentials for ports on the East Coast not specified above shall be based on the low quotations for such ports in **Platt's Oilgram** on January 9, 1942. Customary differentials above the maximum prices for cargo and barge lots which were in effect on October 1, 1941 for deliveries other than in cargo and barge lots may be maintained.

1340.158A **Effective Dates of Amendments.**

* * *

(e) Amendment No. 4 (§§ 1340.154 (f), 1340.159(c) (2), 1340.159(c) (3), 1340.159(c)(6), 1340.158A(4)) to Revised Price Schedule No. 88 shall become effective March 26, 1942. Until such date Revised Price Schedule No. 88 continues in effect as if not amended by Amendment No. 4.

(Pub. No. 421, 77th Cong. 2nd Sess.) Issued this 25th day of March, 1942.

(Sgd.) John E. Hamm
Acting Administrator

* * *

Amendment No. 1 To Temporary Maximum Price Regulation No. 11, Mar. 25, 1942.

Subject: OPA Permits Advance in Service Station Prices for Gasoline in Atlantic Coast Area.

TITLE 32—NATIONAL DEFENSE
CHAPTER XI—OFFICE OF PRICE ADMINISTRATION
Part 1340—Fuel

Amendment No. 1 to Temporary Maximum Price Regulation No. 11* —Motor Fuel Sold at Service Stations in the Curtailment Area.

A statement of the considerations involved in the issuance of this Amendment has been prepared and is issued simultaneously herewith.†

Section 1340.181 is amended and a new section, 1340.183, is added as set forth below:

1340.181 **Appendix A: Maximum prices for motor fuel sold at service stations in the Curtailment Area.**

(a) The maximum price for each grade of motor fuel at each service station in the States of Florida east of the Apalachicola River, Georgia, Oregon, and Washington shall be the price posted at each service station for each grade of motor fuel at the close of business or at 11 o'clock at night on March 13, 1942.

(b) If the maximum price for any grade of motor fuel at a service station in the States of Florida east of the Apalachicola River, Georgia, Oregon and Washington cannot be determined under (a) above, the maximum price shall not be in excess of the price charged on the last delivery of such motor fuel made prior to March 13, 1942 at the same service station, provided such delivery was made after January 13, 1942.

(c) The maximum price for each grade of motor fuel at each service station in the States of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Pennsylvania, Rhode Island, South Carolina, Vermont, Virginia, West Virginia and in the District of Columbia shall not be in excess of .5 of a cent per gallon above the price posted at such service station for each grade of motor fuel at the close of business or at 11 o'clock at night on March 13, 1942.

(d) Where the maximum price for any grade of motor fuel at a service station in the States of Connecticut, Delaware, Georgia, Florida east of the Apalachicola River, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Pennsylvania, Rhode Island, South Carolina, Vermont, Virginia, West Virginia and in the District of Columbia cannot be determined under (c) above, the maximum price shall not be in excess of .5 of a cent per gallon above the price charged on the last delivery of such motor fuel made prior to March 13, 1942 at the same service station, provided that such delivery was made after January 13, 1942.

(e) Where the maximum price for any grade of motor fuel at a service station in the Curtailment Area cannot be determined under (a) to (d) above, sellers may establish a temporary maximum price, which must be equal to or lower than the maximum price for that grade of motor fuel at other service stations in the locality, if any, which shall be submitted to the Office of Price Administration within ten days after the establishment of such price for approval or disapproval.

1340.183 **Effective Dates of Amendments.**

(a) Amendment No. 1 (§§1340.181, 1340.183) to Temporary Maximum Price Regulation No. 11 shall become effective March 26, 1942. Until such date Temporary Maximum Price Regulation No. 11 continues in effect as if not amended by Amendment No. 1.

(Pub. No. 421, 77th Cong., 2nd Sess.) Issued this 25th day of March, 1942.

John E. Hamm,
Acting Administrator.

*7 F.R. 2169.

†The statement of considerations has been filed with the Division of the Federal Register.

* * *

TITLE 32—NATIONAL DEFENSE
CHAPTER XI—OFFICE OF PRICE ADMINISTRATION
Part 1340—Fuel

Order Revoking Revised Price Schedule No. 72*—Bunker C and No. 6 Grade Fuel Oils, East and Gulf Coasts.

A statement of the considerations involved in the issuance of this Order has been prepared and is issued simultaneously herewith.†

Under the authority vested in the Acting Price Administrator by the Emergency Price Control Act of 1942, it is hereby ordered that Revised Price Schedule No. 72—(1340.101 to 1340.109, inclusive) Bunker C and No. 6 Grade Fuel Oils, East and Gulf Coasts—be revoked.

(Pub. No. 421, 77th Cong., 2nd Sess.) This Order shall become effective March 26, 1942.

Issued this 25th day of March, 1942.

John E. Hamm
Acting Administrator

*7 F.R. 1347.

†The statement of considerations has been filed with the Division of the Federal Register.

Gallonage Skids in March As 'Tire Jitters' Take Toll

NPN News Bureau

CLEVELAND—Most oil company executives in the Cleveland area report retail gasoline sales down in March as compared with last year. Incomplete records indicate results ranging from an 11% loss to a "little ahead" of last year.

Quota minded sales managers pointed out that breaking even was equal to a gain when closed stations are considered.

'Jitters' Blamed

Comparing March with January and February gives a picture of a general small gain in January, a slight loss or breaking even in February and a slightly less bright picture in March.

Tire rationing, public "jitters" and an experiment during February with 7-7 closing were the reasons given in most cases for losses. A general feeling of optimism for the future was expressed by most of the companies.

Picked Wrong Operator

Several of the larger companies ascribe their own losses to conditions that could happen during peacetimes. One company with a 7000 gallon loss at one station took the blame for the loss because an operator of the wrong nationality replaced a drafted manager in one of Cleveland's foreign quarters. That same company had a 3000 gal. loss in a so-called white-collar section, but showed a gain of 4000 gal. in an industrial section.

In the Cleveland area, oil company management seems more concerned with getting out of unprofitable locations than in actual gallonage figures as the spring selling season opens.

Gallonage Changes Cited

Last minute roundup on gasoline sales in East, Mid-West and Southwest for March showed:

East—Consumption reported off as high as 20% in New York City area. Oil representatives blame decline on "jittery" civilian drivers.

Mid-West—While local consumption was off 2.5 to 7%, refinery shipments, due to East Coast buying, were above last year for many refiners. Several suppliers ventured that final March gallonage figures will be considerably higher than last year.

Southwest—One leading refiner showed a 1.74% increase in January over last year, and a decrease of 4.24% in February over previous year. Of 3 refiners furnishing March sales estimates, 2 said sales would be 1 to 3% below March, the other 5% below. A total of 13 companies contacted indicated a downward consumption trend in yearly comparisons; but because sales included east coast shipments, their figures would not reflect, accurately, the consumption trend in the Mid-Continent area.

WPB Allots Rubber For Oil Equipment

WASHINGTON — War Production Board is trimming the amount of crude rubber and latex available for civilian commodities in every possible instance, but apparently considers some oil industry equipment important enough to warrant increased allocations.

In an order (Amendment 7 to Supplementary Order M-15-b), War Production Board on March 30 reduced the amount of crude which may be used in 50 products and entirely eliminated use of crude rubber in 20 others.

WPB added grease gun hose to the list of permitted products, and approved an increase in the rubber content of gasoline and tank wagon hose. In setting the "allowables," WPB uses the average monthly consumption of the year ended March 31, 1941, as the base period. Accordingly, grease gun hose may be made at a rate equal to 100% of the amount used in the base period, and gasoline and tank wagon hose may be made at the same rate, an increase from 80% of base period consumption.

Other oil equipment, however, suffered reductions. For instance, the amount of rubber used in rotary drillers' hose may be only 100% of the amount consumed in the base period, where it formerly was 125%. Permitted rate for "oil well specialties" was reduced from 100 to 80% of the base period.

Articles in which the rubber content is reduced include concentrator belts, fire hose, hard rubber pipe and fittings, storage battery parts, gas masks, mine safety battery and lamp parts, automotive parts, electricians' gloves.

Oil Prices

OPA Builds Record for Hike To Offset 6% Rail Increase

By W. W. WESTON, NPN Staff Writer

ST. LOUIS—Two Office of Price Administration lawyers—Joseph Salmon and Abraham Stein—left here for Washington March 27 with a stenographic record of what the oil industry west of the District 1 area thinks should be done about oil prices now that rail freight charges have gone up six per cent.

It wasn't a long record they took back; it took oil men representing 31 states just 6 hours to speak their piece about the price situation. But they said it like gentlemen and the record of their remarks might be called documentary evidence of a new high in understanding between often warring factions in the industry.

—**Major oil company** representatives told the OPA lawyers that independent refiners and jobbers can't absorb any more costs; that they have reached the saturation point, in some cases exceeded it.

—**Independent refiners** told the OPA lawyers that jobber margins in Districts 2 and 3 are the lowest in the country and that majors wouldn't be given any "windfall" if price advances based on higher rail rates—when majors can use their pipelines and barges in many cases—are granted.

—**Oil jobbers,** realizing they are first in line to feel the pincers unless they can advance prices or get their suppliers to absorb the rail rate increase, laid their cards on the table, condemning no one, but, as one jobber representative told OPA, "We're here seriously pleading with you to raise the ceiling."

In conversations following the meeting here of Districts 2 and 3 on March 26, OPA Lawyer Salmon said he thought the oil men "made a good case". He called the meeting "constructive". When meetings with Districts 4 and 5 adjourned the following day, Mr. Salmon said OPA would "try to reach a decision as soon as we can". But it will take "a little while", he added.

Twice during the meetings, once on Thursday and again on Friday, Mr. Salmon indicated OPA hasn't given up its efforts to have the rail hike rescinded. He said it was still pending before the rails' committee of 21 and once went so far as to say the Interstate Commerce Commission hadn't "finally decided".

Price Hike Supported

Oil men who spoke for the record were unanimous in their support of price increases. They argued first that they can't absorb the 6% increase for, although it appears insignificant on the surface, it means $10 to $20 more per tank car in the cost of gasoline to District 2 and 3 jobbers. On the other hand, the additional cost to the average consumer, should the increase be passed on, would amount to 50c to $1 a year, or the "price of a movie", as one independent Mid-Continent refiner pointed out to OPA.

As for Districts 4 and 5 the rail increase means both higher cost of shipping crude to refineries—particularly in District 4 (Rocky Mountain) where rails and trucks are used considerably on incoming crude shipments—and higher cost of shipping products from refineries to points of consumption. Besides, in the upper half of District 4 and in the Pacific Northwest, transportation is so disrupted and such higher cost methods of transportation are being used that pricewise compensation for the 6% rail hike is only a small part of the story.

Second, the oil men argued that oil prices have always moved up and down with rail freight rates. Oil men who could point to 20 or 30 years' experience in oil marketing said this has been the case as long as they could remember. They pointed to many instances where the consumer received immediate benefit from freight rate reductions.

OPA Petition Backfires

Third, oil industry representatives pointed out that OPA, in its petition to the Interstate Commerce Commission requesting postponement of the rail increase on petroleum and products, had firmly stated that oil's price structure couldn't withstand the 6% rail hike. They pointed out that OPA told the ICC it had "investigated" and found that the rail rate increase would "necessitate upward revisions" in price ceilings on petroleum and petroleum products.

Fourth, they argued that the Emergency Price Control Act of 1942 provides that OPA can change practices within industries only to avoid evasion of price ceilings.

This latter argument came out when questions of OPA Lawyer Stein indicated he was mulling over the matter of permitting price increases to companies on the basis of the use each made of rails. Thus a marketer using rails exclusively would be permitted an increase to cover the full 6% rail hike; another, using both rails and water, would be permitted an increase in proportion to his estimated higher costs.

Oil men were quick to interrupt this line of thought, stating such a move would create monopolies by squeezing railshippers out of normal markets when they couldn't meet competition of suppliers more favorably situated or of suppliers who were not permitted to advance their prices. In addition, they quoted from the price control act, claiming it prohibited upsetting the industry's practice in Districts 2 and 3 of basing jobber prices on f.o.b. Group 3 plus rail costs.

What They Asked For

Specifically, oil men representing Districts 2 and 3 requested permission to advance prices on all products by the exact amount of the rail rate increase, to the nearest 0.1c of a gal., and that the increase be permitted without regard to geographic boundaries since the rail rate hike is effective nation-wide.

Oil men representing Districts 4 and 5 requested permission to make a blanket increase of 0.5c in prices for gasoline. They said other products are purchased on an f.o.b. refinery basis, with the customer paying the freight. But then the question of compensating refiners, particularly in District 4, for increased costs of shipping in crude came up and for a time the discussion revolved around possibilities of an increase in District 4 of 0.5c in delivered prices for gasoline and an increase of 0.25c in f.o.b. refinery prices on all other products.

Hit Coming & Going

District 4 representatives contended the March 18 rail hike had increased costs on their incoming crude shipments to the point of requiring a 0.2c hike in products prices and that a corresponding increase was required to cover increased costs on outgoing shipments.

However, effects of the rail hike cannot be measured strictly in terms of what it does to margins on specific hauls of products, the oil men pointed out, since oil companies haul other commodities besides petroleum and the 6% increase affects all sorts of supplies a company might bring in by rail. This is only one instance of the general, over-all higher cost of doing business and is only one of the many higher charges oil companies are absorbing, they said.

During the meeting with District 5 on March 27, a Pacific Coast refiner asked point-blank: "Is it true that when a seller is permitted by OPA to increase his prices, all other sellers in the area can increase theirs, too?"

Mr. Salmon replied: "I'm not permitted to interpret price schedules. I'm sorry." He suggested that the question be submitted to OPA in writing at Washington.

"Well," the refiner commented, "we just don't want to get our fingers in the wringer."

Large and Small Oil Companies Campaign To Banish Customers' 'Tire Jitters'

NPN News Bureau

CLEVELAND—From many sources NPN learns that the oil industry's "anti-jitter campaign" on tires is gaining momentum. Customers are recovering from the shock of reading that they may not get any more tires after their present ones wear out.

Car owners are forgetting the arbitrary 20,000-mile figure as being the end of a tire life. They are reading in oil company advertising, hearing over the radio and being told at service stations about people in their neighborhood who get 40,000 to 50,000 or more miles from a set of tires.

One major company is carrying on the program in terms of both long mileage and long period of time. Using a basis of 40,000 miles as the life of a tire with care, this company converts the unused mileage to time, and tells customers that they still have 3 years and 9 months left, or whatever the figure might be.

One of the company's leading jobbers has developed a very unique promotion plan, tieing a complete campaign around a customer booklet. How this plan works will be one of NPN's features in an early issue. There will also be other stories, ideas and pointers, telling how oil marketers are licking the "tire jitters".

The EDITOR'S Page

Readers comments and opinions will be much appreciated by—WARREN C. PLATT, NPN's Editor and publisher, Penton Building, Cleveland, O.

Rubber Shortage Blame May Decide Elections???

WHO is responsible for this country's drastic rubber shortage and who will have to take the blame when a few million car owners start walking in 1943 and 1944 and also start going without important living essentials because of a shutting down of probably part of our vast truck transportation system?

Will the blame fall on the Standard Oil Co. of New Jersey because of its arrangements with the big German Dye Trust on synthetic rubber and other patents?

Or will the fault be placed on Jesse Jones, Roosevelt's Secretary of Commerce and head of the RFC who believed that the Dutch East Indies would never fall to the Japs and so turned a cold shoulder to financing synthetic rubber plants here 2 years ago?

Or will the Army and Navy be held responsible for having much the same ideas?

Or will the responsibility be placed on Roosevelt who likewise did not believe in the Japs' strength and who elected to cater to and protect the British-Dutch Rubber Cartel rather than develop competition to that Cartel by encouraging a self-supporting synthetic rubber industry in the United States?

The decision on all these questions will probably be made by the general voting and tire using public partly, at least, as a result of the hearings now being held before the Truman Senate committee at Washington.

However, the final decision may not be registered until the presidential election in the Fall of 1944, a time when more millions of American voters may be hoofing it along streets and even country roads than since the old "horse and buggy days". As those voters slog along, weary and dusty, they probably will be thinking about who is responsible for their discomfort, and perhaps for other discomforts, and for all the hardships of a critical war.

If these tired voters should think that a great American company in cahoots with an alien and now Enemy Monopoly is responsible for their distress, they most likely will vote for whoever is running for president who is slaying, or has slain, that particular dragon.

But if they think that a certain public office holder and his associates fumbled the ball, and is responsible for their plight, it is quite conceivable that they will vote against a return to a Fourth Term, or a continuation of the New Deal in power.

Probably nothing more revolutionary could have happened to this nation than to put it back on foot, as the fall of the East Indies threatens to do. Practically everyone is affected and in the most minute detail of his living, as well as in the most important activities of his working and business life. It is hard to think of a more far-reaching move against this country that the Japs could have taken.

THE shortage of rubber probably will be most acute along about election time in 1944. While the oil industry hopes to have 700,000 tons a year of synthetic rubber in production by the end of 1943, that, it is now estimated, will only take care of military and Lend-Lease requirements. The possibility of any greater production depends on the celerity of the Roosevelt administration in finding and furnishing steel to the oil industry and in unwinding the red tape.

By the Fall of 1944 a lot of tires will have gone out of service and a lot of tireless cars will be in garages.

And if by the Fall of 1944 the war is still on what the slogging ex-car rider thinks as he hikes to the polls will not be hard to guess. Someone is going to hang for his inconveniences, to describe them mildly.

Hence the great interest in what is going on before the Truman committee at Washington these days.

Last week, Thurman Arnold, self-styled trust buster, hurled charges of continuing a conspiracy with the enemy, the German Dye Trust, at the New Jersey Standard, just after the latter company had plead *nolo contendere* and paid nominal fines for alleged violation of the anti-trust laws in regard to its patent relations with the German company. Arnold bluntly placed the blame for today's rubber shortage in that there is not a sufficiently large synthetic industry in this country, at the door of the Standard.

Arnold had hardly left the stand when President Farish of the Standard also bluntly met the issues by disputing the truthfulness of Arnold and saying that the company had refused to undertake the negotiations for settlement of the complaint until the charge of "treason" had been eliminated. This Arnold did.

President Farish is now on the stand, as this is written, undertaking to refute every charge of wrong doing, disloyalty and failure to do all the company could to get the American government and American rubber and oil companies to join in building up a vast synthetic rubber industry in the U. S. long before we got into this war. Farish said his company preferred, though innocent of the charges, to settle the case in order that he and his associates could get on with the important part that his company naturally plays in this country's war effort, rather than spend their days in court.

The story of this controversy is filled with much detail, some of which is printed in the news pages of this issue of NPN. More will be printed next week. Everyone should read all of it because hardly a more important controversy could arise on a more important company, in regard to more important products—rubber and aviation gasoline processes—at the start of such a vast world war.

The controversy concerns the possibility of laws to regulate the relations of American companies to foreign patent owners; it concerns also possible laws governing the pooling of American patents, by cross-licensing, etc., in order to permit orderly development of American inventions; it concerns the good faith of this administration in its "truce" on anti-trust drives, announced by Roosevelt just as Arnold finished his blast against the Standard of New Jersey.

But, above all, it concerns who is going to be held responsible for the rubber shortage by the voters as they cautiously drive to the polls this Fall when Congress comes up for election, and particularly who will be held responsible as the then weary voters hoof it to the polls in November of 1944?

Lack of rubber may cause an important change in this country's history?

'Class Action' Madison Case Will Be Argued on April 7

Special to NPN

MADISON, Wis., March 25.—Motions seeking to block an alleged new attempt to start a "class action" in the Madison federal district on behalf of all retail gasoline purchasers in 10 midwestern states will be argued before Judge Patrick T. Stone in Wausau, Wis., April 7.

Suit was filed in the Madison court recently on behalf of James Zifke, town of Burke, Dane county, "and all others similarly situated," to recover treble damages from major oil companies convicted here in 1938 of conspiracy to raise gasoline tank car prices during 1935 and 1936 in Wisconsin, Illinois, Minnesota, Michigan, Missouri, Kansas, Iowa, Indiana and the two Dakotas. Specific damages of $1500 were asked for Mr. Zifke.

Defense Motions Filed

Motions have been filed here by defense attorneys asking dismissal of the complaint insofar as it attempts to assert claims on behalf of all other retail purchasers and to make the complaint more definite and certain, together with an extension of time to answer.

Among the grounds stated in the motions are:

That the plaintiff is not a party of interest to the claims of any other purchaser and is not entitled to recover damages suffered by such other purchasers as a result of the allegedly unlawful prices resulting from the conspiracy;

That the plaintiff and other retail purchasers in the 10 states do not constitute a class such as may be represented in a suit by the plaintiff;

That the right of the plaintiff and every other purchaser to recover damages is specific, and depends upon the evidence peculiar to each case;

That each member of the purchasing class and each defendant is entitled to a trial by jury on each claim and that to permit maintenance of an action by the plaintiff in behalf of others similarly situated would be violative of the United States Constitution.

An affidavit by Defense Attorney David T. Searls, Chicago, accompanying the motions, points out that four similar "class actions" have been dismissed—three in the northern district of Illinois and one in Iowa.

72 Plaintiffs Involved

Up to the date of the affidavit, Mr. Searls disclosed, 38 treble damage cases, involving 72 separate plaintiffs, had been filed against the defendant oil companies in four jurisdictions—five, involving 18 defendants, in the northern district of Illinois, eastern division; 29, involving 45 plaintiffs, in the western Wisconsin district; three, involving 8 plaintiffs, in the eastern Wisconsin district; and one, involving a single plaintiff, in the northern Iowa district, western division.

Besides the three Illinois suits dismissed insofar as they attempted to assert claims on behalf of others than the plaintiffs who purchased gasoline in the area during 1935 and 1936, the one in Iowa represented an action by the Farmers Co-operative Oil Co., on behalf of itself and 700 individual members of the co-op.

Some of the pending actions, Attorney Searls' affidavit pointed out, seek damages for gasoline purchased between March 6, 1935, and Dec. 22, 1936, the date of the indictment, while others ask recovery for varying periods up to six years. And the claims are based upon allegedly unlawful price increases varying from 1c to 2¼c a gal., he said.

Some of the suits named as defendants only the four defendant companies actually found guilty by a federal court jury, while others named as many as 22 corporations and individuals, including some who were convicted, others who pleaded nolo contendere and still others who were dismissed, Mr. Searls noted.

Another affidavit, by M. O. Blood, auditor and statistician for the defendant companies who had made a study of the marketing picture in 1935 and 1936, pointed to various factors governing the purchases of individual consumers in the two alleged conspiracy years:

That retail purchasers in the 10 states exceeded 10,000,000;

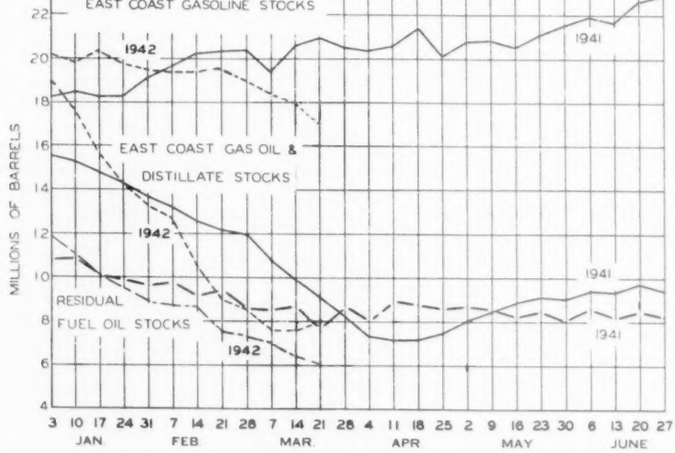
That at many times in 1936 the same seller sold the same grade of gasoline to different purchasers at different prices;

That the Standard Oil Co. of Indiana alone made 3706 price reductions in 1935 and 1936 because of local competition;

That prices at which the reseller sold at retail varied as much as 4c a gal. during 1935, and in 1936 throughout the area they varied as much as 7c a gal.

The number of registered vehicles in the 10-state area in 1935 totaled 7,458,907, Mr. Blood found, including 6,445,248 passenger vehicles and 1,013,659 trucks and busses. In 1936, there were 8,026,975 registered vehicles including 6,928,535 passenger cars and 1,098,440 trucks and busses. In 1936 also there were 645,677 tractors in addition to thousands of motorboats and other watercraft and hundreds of aircraft using gasoline, he pointed out.

East's Distillate Stocks Rise Slightly



Week ended March 21 found East Coast distillate stocks slightly higher than previous week, according to American Petroleum Institute figures. Residual stocks and gasoline inventories continued sharp downward trend, however. Emergency steps are being taken to relieve residual tightness, with stocks down to about 6,000,000 bbls. *(See story p. 21)*

TAPCO Report Goes to ODT

NPN News Bureau

WASHINGTON — No action has been taken on recommendations sent to Office of Defense Transportation by 3-man board which held public hearing March 27 on application of Trans-American Pipeline Corp. for right of eminent domain.

U. S. Tourists in Canada To Get Ration Cards

Special to NPN

OTTAWA — U. S. tourists who plan to be in Canada after April 1—the day gasoline rationing starts—can secure coupon ration books by applying to the nearest Canadian customs office. There is no charge for the book, and it may be secured in advance by writing.

There are two types of tourist ration books. One is for tourists remaining 48 hours, and the other for those visiting 90 days. Anyone who stays more than 90 days must apply for "Category A" rating and pay $1 for a ration book—the same as a Canadian resident.

Canadian Oil Controller Warns Against 'Hoarding'

Special to NPN

OTTAWA — Office of Canada's oil controller has issued a warning against "hoarding" of gasoline.

Under rationing Order O.C. 12, the Controller's office says, gasoline which is purchased now for use in passenger motor cars and non-commercial marine engines may not be used for such purposes after April 1, 1942.

All passenger motor cars, except those owned or operated by any government, will have to secure motor fuel from an established service station or gasoline dealer and such motor fuel must be dispensed directly to the tank of the vehicle. Distributors and dealers having knowledge of breach of this order by any consumer are prohibited from supplying him with fuel.

After April 1, only graded gasoline may be used in non-commercial marine engines and must be obtained in accordance with rationing regulations.

Briefs from Canada

Special to NPN

Forty-mile speed limit becomes effective in Canada about April 15. This step has been taken to conserve tires and gasoline.

* * *

McColl-Frontenac Oil Co., Montreal, reports increase in sales and earnings for first 2 months of 1942.

* * *

Canada has ordered restriction in use of retreaded tires to commercial vehicles, buses and to war workers who have to depend on automobiles to get to work.

REFINING NEWS

Russia to Get U. S. Processes

NPN News Bureau

WASHINGTON—Russia soon may be constructing refineries to use several American cracking methods, some of which have not even been licensed to other American refiners.

Recommendation No. 42 of Office of Petroleum Co-ordinator, made public March 25, is designed to make available to the Russian government through the International Catalytic Oil Processes Corp. certain processes, "including particularly" thermal cracking and reforming, sulfuric acid alkylation, polymerization, catalytic cracking, hydroforming and dehydrocyclization.

International Catalytic, under terms of the recommendation which was signed by Deputy Co-ordinator Ralph K. Davies on March 17, will act as the "funnel" for extending the processes—and plans for the plants to utilize them—to Machinoimport, an agency of the Russian government.

Owned by Several Companies

The processes to be offered Machinoimport by International Catalytic are owned by Standard Oil Development, Standard Catalytic, Shell Development, Texaco Development, Indiana Standard, Universal, and M. W. Kellogg Co., and their affiliates.

International Catalytic is to negotiate with Machinoimport for the sale of rights in these processes, and to furnish the Russian agency with designs, specifications, and other data necessary for construction of the plants.

But any contract agreed to must be approved by OPC before it is finally promulgated.

"Machinoimport and its contractors will be required to keep confidential and use only for the purpose of the proposed plants the data furnished to them pursuant to these arrangements," Recommendation said.

OPC said the Office for Emergency Management "has requested the above-named companies to proceed without delay with the negotiations involved in the furnishing to Machinoimport of the rights and technical data of said companies with respect to the processes."

Recommendation said Amtorg Trading Corp. had queried several American companies about certain refining processes and the construction in Russia of plants to utilize those methods.

Need Research Data Also

OPC said it had been informed by International Catalytic that it would be necessary to place before the Russians the results of research and development work of several companies if the Russians were to be given the most advanced catalytic processes available.

Some of these processes are available through a licensing arrangement, while licensing provisions have not been completed for others. On the latter, however, OPC said it was informed, International Catalytic is to acquire licensing rights outside the U. S. as a result of licensing arrangements "agreed upon in principle."

To make the processes available to Machinoimport, International Catalytic will acquire rights to the processes involved and will offer them to the Russian agency "for a consideration to be agreed upon".

Plant designs and specifications will be made available in the same way, and Machinoimport will award contracts for materials and construction.

Refinery Operations

(American Petroleum Institute figures in barrels of 42 gallons. Figures are U. S. totals and are on a Bureau of Mines basis. Breakdown by districts will be published in April 8 NPN.)

	Week Ended Mar. 28, '42	Week Ended Mar. 21, '42	Week Ended Mar. 29, '41
Crude runs to stills (Da. avg.)	3,667,000	3,599,000	3,624,000
Gasoline production at refineries including natural blended	11,663,000	11,235,000	11,878,000
Finished & unfinished gasoline stocks	105,624,000	106,131,000	99,086,000
Gas oil & distillate stocks	31,756,000	32,290,000	30,548,000
Residual fuel oil stocks	83,045,000	84,025,000	94,723,000

W.P.R.A. Hears Talks On Wartime Refining

By V. B. GUTHRIE, NPN Managing Editor

ST. LOUIS—Refiners of the Mid-Continent and central states face the immediate necessity of shifting yields of refined products from crude run in their stills so as to make less motor gasoline and more light and heavy fuel oils, the Western Petroleum Refiners Assn. was told at its annual meeting here March 25.

Two speakers described the widening effect of wartime conditions which now bring to refiners in these territories the problem of adjusting product yields which has already confronted refiners on the East and Gulf Coasts.

Wright Gary, director of refining of the Office of Petroleum Co-ordinator at Washington, outlined two economic conditions which he said were making necessary a revision of operating schedules at refineries throughout the country. One is that demands for fuel oil are growing and will continue to increase as the nation swings into full speed in its war program, and it is necessary for plants to make more light and heavy fuel oils. At the same time demand for motor gasoline will drop because of tire rationing, he said. He suggested a 10% curtailment of gasoline yield as in line with anticipated curtailment of driving in 1942. Next year, he said, the decrease in consumption of motor fuel would be greater. The overall demand for petroleum products make it necessary, he said, for refiners in general to work on these adjustments without cutting their runs of crude to stills.

Gary Suggests Study

Director Gary suggested that Mid-Continent refiners, who are now taking an average yield of approximately 52% of gasoline from their crude, study the technique of operating their plants to take a cut of 5%, of 10% and 15% in gasoline yield and also figure out their revenue from sale of products at current market prices when operating on these schedules. He said he saw hopes, through the Office of Price Administration, of securing adjustments in prices for other products which would compensate refiners for curtailing their yield of their largest volume product and the one bringing them the best return. He said adjustments should be looked upon not as price advances but as evidence of the change in the refiners' structure of products, to take the emphasis off motor gasoline and transfer it to the fuel oils. Mr. Gary said the rate of yields under the structure of the future would differ for the various refining districts of the country, and for individual plants, but that it was a problem for each refiner to work out in the most practicable manner for his own circumstances. He asked the refiners to send to Washington the data on how their revenues would be affected by shifts in yields and said this data would be compiled by refining districts to present to the OPA.

Mr. Gary commented on the situation of Gulf Coast refiners as being different from other districts in that not only their gasoline yields would have to be reduced, but also their crude runs

Talks Before W.P.R.A.

Wright W. Gary . . . refining director of OPC

Henderson Re-elected

C. L. Henderson, Wichita, Kans., Vickers Petroleum Co., was re-elected president of the Western Petroleum Refiners Assn. at the annual meeting in St. Louis, March 25.

The 4 vice-presidents were also re-elected; R. W. McDowell, Tulsa, Mid-Continent Petroleum Corp.; C. W. Cahoon, Jr., Wichita Falls, Tex., Olney Oil & Refining Co.; T. M. Martin, El Dorado, Ark., Lion Oil Refining Co.; H. E. Zoller, Wichita, Derby Oil Co.

The 22 members of the board of directors were re-elected. In addition Rex H. Winget, Cushing Refining & Gasoline Co., Cushing, Okla., was elected to the board.

must be cut because of the shortage of transportation facilities to move their products. However, their throughput must be maintained to allow them to produce the required volume of products needed for military purposes, he said.

Mr. Gary suggested that closer control over refining operations in general might be brought about, through the OPC, by issuing periodically recommendations on yields of principal products from crude, for the various refining districts. The purpose of this would be to insure production of larger volume of products needed in the war program, principally fuel oils.

Another speaker before the W.P.R.A., B. L. Majewski, Deep Rock Oil Corp., chairman of the District 2 marketing committee, said the immediate necessity for Mid-Continent and central states refiners shifting their yields from crude, was the shortage of tank cars to supply fuel oil to the East Coast. As part of a program worked out in the Office of Petroleum Co-ordinator March 24, to relieve the East Coast fuel oil situation, he said that District 2 refiners would be called on to increase their yields of both heavy and light fuel oils, and curtail their gasoline output proportionately.

Mr. Majewski also said the refiners in this district would be called on to raise the gravity and lower the viscosity of their heavy fuels by adding 20% of gas oil, so that it could be shipped to the East Coast in clean cars, if not enough cars with coils could be secured for their emergency movement.

He said that a survey was being made by the OPC of the crudes in the Southwest from which the largest volumes of fuel oils could be produced, and that an effort would be made to bring more of these crudes to the eastern refiners for processing.

OPC 'Wartime Design' Plan Approved by Refiners

WASHINGTON—Refining-plant contractors "are responding enthusiastically" to Office of Petroleum Co-ordinator's suggestion on conserving critical materials and machines used in refineries, OPC announced March 31. In addition, OPC's refining division already has received conservation suggestions from many members of the industry, OPC said.

(For text of OPC's "Suggestions for Wartime Plant Design", see NPN March 25, p. 18 and 19) and also story entitled "Wartime Design Urged to Speed Construction of New Oil Refineries", p. 17.)

Mr. Majewski also expressed his hope that the price ceilings on light and heavy fuel oils would be raised by the Office of Price Administration, on the emergency representations of the oil industry committees and the OPC to compensate refiners for shifting their yields of products from crude.

The need for readjustment of plant operations, to de-emphasize motor gasoline, was commented upon by C. L. Henderson, Vickers Petroleum Co., Wichita, Kansas, W.P.R.A. president, in his remarks opening the St. Louis meeting. "Transportation changes, rubber restrictions, and war requirements for products have brought about an unbalanced condition of output and stocks of petroleum products", he said. "Careful readjustments must immediately be made in order to prevent what is now almost an economic crisis from becoming more serious."

There was no official discussion in the meeting of the proposals brought by the two speakers from Washington, that

(*Continued on page* 17)

W.P.R.A. Prexy and District 2 Refining Chairman at Convention

C. L. Henderson, Wichita, Kans., Vickers Petroleum Co., re-elected president of the Western Petroleum Refiners Assn., and Paul G. Blazer, Ashland, Ky., Ashland Oil & Refining Co., chairman of District 2 Refining Committee, listen to a comment from F. W. McCurry, Wichita, Derby Oil Co.

Shell Chemical Plans Big Butadiene Unit

Special to NPN

SAN FRANCISCO—Construction of a large plant for the manufacture of butadiene, principal ingredient of synthetic rubber, will be started immediately by Shell Chemical Co., according to J. Oostermeyer, president.

New plant, which will cost approximately $15,000,000 and will be located in the West, is to be financed by the government as part of its program to increase production of synthetic rubber.

Early experimentation which developed new uses for synthetic rubber was based on butadiene production of a pilot plant at Shell's laboratories, the company said. In the early fall of last year, Shell Chemical began actual production on a large scale at a plant located in the Southwest.

Proposed plant, several times larger, will produce many thousand tons of butadiene annually and is expected to be in actual production in mid 1943.

East Coast Refiner Shuts Down Plant

Special to NPN

PERTH AMBOY, N. J.—War conditions have made it impossible to procure sufficient quantities of crude oil to continue refinery operations, or asphalt to operate its roofing plant, Barber Asphalt Corp. announced last week.

Refinery operations were suspended March 24 and the roofing plant will be shut down April 6, company spokesman said, adding that both plants will remain closed indefinitely.

Company's intention is to allocate materials already produced to customers holding government priorities first and then to other customers as equitably as possible.

Refining Technology

INCLUDING INTERNATIONAL PETROLEUM TECHNOLOGY

Increased Prices for Other Petroleum Products Seen Necessary if Gasoline Yields Are Cut

● Adjustments upward in prices for distillates and residual fuel oils, to compensate for the shifting in plant operations to produce less of the ordinary gasolines, are seen necessary by many refinery executives.

In normal times, a surplus of gasoline production for consumptive requirements, such as now exists in some refining territories, could be avoided by cutting the volume of crude oil run to stills. With the present general need for increased refinery operations to secure the larger volumes of light and heavy fuel oils needed in wartime and essential industry uses, it is recognized, however, that the problem must be met in another way in most plants. Higher prices for the former by-products which are now taking a more important role in refiners' operating programs are looked upon as a logical and practical solution, even though the securing of price adjustments would be complicated because of the price ceilings for these products fixed by the Office of Price Administration.

To show the effect on the refiner's revenue per barrel of crude run of reducing the yield of gasoline, but maintaining the same rate of yield from crude of gasoline, kerosine, distillates and residual fuel oils, REFINING TECHNOLOGY has prepared Table 1. The figures are for the Mid-Continent field, where accurate yield and cost data on plant operations are available. The same trend in revenues per barrel would apply in other refining districts, however.

Where the gasoline yield per barrel of crude is reduced 10% and the yield of the other 3 products increased so that the present 86.1% recovery rate is maintained, the loss in revenue to the refiner is shown to be 5.29c per bbl. at the present level of prices for all products. (The refinery price of gasoline in the Mid-Continent is now less than the figure used in the table). Where the gasoline yield is reduced 20% and the yield of other products increased in proportion, the loss in revenue to the refiner would be 11.24c per bbl.

It would seem logical, in any program to compensate for the shift in proportionate yield of products, that the former so-called by-products now coming into increasing demand would have to carry the principal burden of the price adjustment. With a 10% reduction in gasoline yield, if the price of gasoline remained unchanged, prices of the other products would have to be increased approximately 10% to give the refiner the same $1.6946 per bbl. revenue from these 4 large-volume products. If gasoline yields were reduced by 20%, nearly a fifth would have to be added to prices of other products, to achieve the present revenue per barrel.

Another consideration is that the refiner would have proportionately larger volumes of the distillates and heavy fuel oils to market. With their yields increased to compensate for a 10% reduction in gasoline yield, the refiner might have something like 11% more heavy fuel oil, 16% more kerosine and 20% more of the light fuel oil grades to sell. If he cut his gasoline yield by 20%, he would have 25% more heavy fuels, 30% more kerosine and nearly 40% more distillates to market. Actually, refiners would increase their yields of the other products than gasoline in best demand in their territories. This would vary in different parts of the country and also for the individual plant. However, while the overall demand for these products is growing, selling the increased volumes might be a problem for the individual company's sales department, particularly at the adjusted prices.

The following comment on the shifting in refinery operations now taking place was made by C. L. Hender-

TABLE 1—How a Mid-Continent Refiner's Revenue from a Barrel of Crude (At Present Price Levels for Refined Products) Would Be Affected by Reducing Yield of Gasoline Per Barrel of Crude and Increasing Yield of Kerosine, Distillates and Residual Fuels to Maintain the Same Recovery Rate:

Product	Present Yield % Per Bbl.	Present Revenue Per Bbl.	Reducing Gasoline Yield 10%	Rev. Per Bbl.	Reducing Gasoline Yield 20%	Rev. Per Bbl.
Gasoline	51.9%	$1.2534	46.7%	$1.1278	41.5%	$1.0022
Kerosine	6.1%	.1169	7.1%	.1359	8.1%	.1552
Distillates	8.3%	.1362	10.3%	.1690	11.3%	.1854
Residual Fuel	19.8%	.1881	22.0%	.2090	25.2%	.2394
Total	86.1%	$1.6946	86.1%	$1.6417	86.1%	$1.5822
Loss in per bbl. revenue				$0.0529		$0.1124

son, Vickers Petroleum Co., Wichita, Kans., president of the Western Petroleum Refiners Assn., at its annual meeting March 25, in St. Louis:

"Transportation changes, rubber restrictions and war requirements for products have brought about an unbalanced condition of output and stocks of petroleum products. Careful adjustments must immediately be made in order to prevent what is now almost an economic crisis from becoming more serious."

The possibility of a trend toward gasoline declining in its role as the major refined product, and other products moving into the role of primary products, rather than by-products, is commented on by W. T. Holliday, president of the Standard Oil Co. of Ohio, in his annual report on 1941 operations.

Mr. Holliday points out that his company's refineries last year processed 20.8% more crude than in 1940, in existing units, and that average daily crude runs were in excess of average rated plant capacity for the year, as a result of efficient operations and less than normal downtime for repairs and maintenance. This company markets in a territory where there are hundreds of factories working on war goods contracts. Its sales of lubricating oils in 1941 were 57% larger than in 1940, light fuel oils 57% and heavy fuel oils 35% larger.

"In spite of increased crude oil runs in 1941," he told his stockholders, "the company had to reduce its gasoline yield per barrel of crude run by 7% in order to produce enough of the other petroleum products to supply the demand. Regardless of the consumptive demand for gasoline, it will be necessary to *still further* reduce the yield of gasoline per barrel of crude to supply the demand for these other petroleum products, and for a considerable period of time it seems quite probable that the increase in demand for the non-gasoline products may fully offset any reduction in ordinary gasoline requirements upon our refineries." As this shift occurs, comments Mr. Holliday, relative price adjustments will have to be permitted.

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Abstracts from Current Literature

Type Analysis of Hydrocarbon Oils

R. M. Deanesly and L. T. Carleton, Shell Development Co., Emeryville, Cal., in "Industrial and Engineering Chemistry," March, 1942.

A new procedure for analysis of petroleum oils by type, is described, which appears to be applicable equally to straight-run and cracked products, and to synthetic oils over all the range in which the requisite measurements are possible.

The procedure is in 2 steps:

1—Evaluation of aromaticity or unsaturation of the sample.

2—Determination of the structure of the sample when completely saturated.

This combined with 1 permits a segregation of the carbon atom as aromatic, naphthentic and paraffinic. It is shown that the unsaturation (whether olefinic or aromatic) may be calculated from physical measurements by the use of 2 empirically established relations, and the analysis is completed by purely mathematical processes. The more critical step is described as the evaluation of the aromaticity or other unsaturation.

In the control of industrial operations, such as cracking and acid treating, the aim is the transformation of hydrocarbons by types, rather than of individual compounds, thus offering advantages to a method of type analysis. The method presented is said to have wider application and greater accuracy than earlier known methods.

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Lubrication of High Speed Diesel Engines

H. G. Vesper, manager, lubricant division, Standard Oil Co. of California, in "Diesel Power," March 1942.

The work of this company in developing crankcase oils suitable for high-speed diesel engines is described, leading to the modern detergent-compounded oils. "This new type of compounding utilizes metallic 'soaps'" the author states. "It is not a single chemical compound but rather a complex mixture of several compounds, each of which has been chosen for the effect it will have on the whole." Many compounds which are non-corrosive when used with one base oil were found to be corrosive when employed with some other oil, it is reported. The compounding material is said to serve as an anti-oxidant, also in increasing the ability of the oil to cling to hot metal surfaces and to have a detergent action.

Data is given to show the rate of increase in use of high-speed diesels in trucks and buses. The total diesel horsepower in trucks through 1940 is given as 645,000 and 178,000 in buses. The combined total represents about one-fourth of the total installed high-speed diesel horsepower in the U. S.

Hass to Give Priestley Lectures

H. B. Hass, head of the Department of Chemistry of Purdue University, and world authority on the nitration and chlorination of the paraffin hydrocarbons, will deliver the 16th annual series of Priestley Lectures at Pennsylvania State College, March 16-20.

In his lectures he will discuss "Functions of Research in the University", "The Nitroparaffins," "Reactions of the Aliphatic Nitro Compounds," "Chlorination of Hydrocarbons," and "Chlorinolysis and Other Reactions of the Chloro-Paraffins."

Refining's Response to War Stimulus Shown in Oil Company 1941 Reports

The great impetus the war has already given the petroleum refining industry in this country is reflected in the statements of oil company presidents accompanying their annual reports on 1941 operations.

In the few reports already at hand, it is shown that plants ran more crude to stills than in 1940 and still higher rates of throughput are seen necessary for 1942. Along with this increase in operation to make the volumes of standard products needed in the war effort, new units were installed for the manufacture of aviation gasoline, butadiene, toluene and special grades of lubricants which are essentially war products.

The research activities of oil companies have been expanded, rather than curtailed; but are almost 100% confined to the development of new products needed in the prosecution of the war and to new processes for making aviation gasoline, toluene, butadiene, and heavy-duty lubricants.

Following is a summary of developments in the refining branch of a few of the large oil companies, taken from the annual reports which have already been issued:

Union Oil Co. of California

Its 3 refineries processed 26,047,000 bbls. of crude in 1941, as compared with 25,253,000 bbls. in 1940. Over $7,500,000 was invested in modernization of manufacturing facilities, described as follows in the report:

"At the Oleum refinery a new coking plant, designed to process low-gravity, high-sulfur crude oils, started operating about the middle of the year. This plant recovers gas oils and distillates from crude, and the coke residue is sold for fuel.

"Another plant was completed near the end of the year to produce waxes of considerably higher melting point than the usual paraffin waxes. These waxes are used in manufacture of liquid-proof paper containers and food wrappers, and may be substituted for waxes which were formerly imported. A hydroformer plant, or catalytic cracking unit, was also placed in operation during the year. This unit converts unfinished gasolines and distillates into blending materials for the manufacture of high-octane gasolines. To replace older facilities, another plant is under construction at Oleum for production of asphalts and lubricating oils. During February, 1942, a new administration building was occupied, replacing former inadequate housing.

"At the Los Angeles refinery, construction was started on a unit which will produce iso-pentane, a product used in blending 100-octane aviation gasoline. This plant should be completed by April, 1942. A gas reversion plant, which embodies many important advances in refining, is also under construction. This plant will replace depreciated cracking units and will produce a high yield of improved quality gasoline. Some products of this unit will furnish additional feed stocks for the alkylation plant, and give increased production of 100-octane aviation gasoline.

"At the Bakersfield refinery, asphalt and road oil stills were replaced by modern, more efficient equipment. A gasoline stabilizing unit was also installed."

Phillips Petroleum Company

Its 4 refineries processed 22,337,629 bbls. of crude, 15.7% more than in 1940. The statement of Frank Phillips, chairman, and K. S. Adams, president, submitted with the 1941 earnings report carries the following on the company's manufacturing program:

"In full co-operation with the government's war efforts, the company is engaged in a comprehensive plan for increasing its manufacture of essential war products. The more important elements of this program are: two additional large plants for manufacturing 100-octane aviation gasoline by the company's new hydrofluoric acid alkylation process; extensive additions to facilities for gathering, transporting and separating aviation gasoline raw materials; and the enlargement of certain undercapacity sections of the finished products pipeline system. These and other additions will increase the company's aviation gasoline capacity to a level substantially higher than at the end of 1941.

"The only apparent solution to the nation's problem of rubber supply, occasioned by developments in the Far East, lies in the immediate development of a large synthetic rubber manufacturing capacity. Hycar Chemical Co., owned 50% by Phillips Petroleum Co. (balance by B. F. Goodrich Co.) is in a position to become one of the largest producers of butadiene and synthetic rubber. Hycar's original plant has already been enlarged to 3 times its original capacity. A synthetic rubber plant which Hycar is now building for the government's Defense Plant Corp. is likewise being tripled in size. Plans are also in preliminary stages for a butadiene plant in conjunction with another synthetic rubber plant. Except for the original finished rubber plant of Hycar Chemical Co., the other projects will be owned by the government, but designed, constructed and operated by Hycar."

Standard Oil Company (Ohio)

This company, reported President W. T. Holliday, processed 25,757,000 bbls. of crude in 1941, 20.8% more than in 1940, without the installation of any new crude running units. Average daily crude runs were in excess of average rated refinery capacity for the year as a result of efficient operation and less than normal shutdowns for repairs and maintenance. The following is given as to refinery construction in 1941 and that contemplated for 1942:

"The construction of catalytic polymerization plants at the Cleveland, Lima and Latonia refineries was completed during the first half of the year and, together with the installation completed at the Toledo refinery in 1939, has improved the quality of output and contributed to the efficiency of operations. The catalytic alkylation plant for the production of high octane alkylate to be used in 100-octane gasoline was completed during the fourth quarter and is now in full operation. A new continuous coking unit

was constructed at the Toledo refinery to replace the 12 old shell-type coking stills.

"Further improvements and additions to refinery facilities are contemplated for 1942 and some of these are already under way. Such improvements and additions are primarily related to the expanded demands from war industries production and also include additions to facilities for the production of 100-octane gasoline."

Sun Oil Company

J. Howard Pew, president, reported that $2,151,000 was expended in capital investments in refining properties in 1941. "Expansion of our manufacturing facilities will continue during the current year at accelerated pace because of the government's demands for special products required in its war effort," he stated.

"A new plant will be constructed to turn out special grades of aviation lubricants and another plant to produce high-octane aviation gasoline."

Research

The importance of war time research to produce new and improved products from petroleum was commented on by two companies, in their 1941 reports. Said the Phillips Petroleum Co. on this subject:

"Of particular importance to national defense were several new developments in processes for producing special aviation gasolines and butadiene used in the manufacture of finished synthetic rubber.

"Among the important new processes being developed by the company is hydrofluoric acid alkylation for producing 100-octane aviation gasoline. Of considerable current importance is the catalytic desulfurization process which greatly increases the tetraethyl lead susceptibility of gasoline and aviation gasoline base stocks."

The report of the Union Oil Co. lists the following as among products of wartime significance recently developed; launching greases, low temperature lubricants for high altitude military aircraft, non-floating greases for submarines, recoil oils and special lubricants for use in the drawing and forming operations of airplane wings and fuselages. It continued;

"A paraffinic, heavy-duty lubricating oil, to be marked as 'D5X' has been perfected and found to pass the extremely severe requirements of the War Department. (Only 5 other oils in the country have passed the tests involved.)

"Advances have been made in fuel investigation, particularly in the field of high-speed smokeless diesel fuels. An inexpensive additive for such fuels has been developed, which has been found to increase the efficiency of high-speed diesel engine operation.

"Process advances of the year include: (1) the perfecting of a dehydrogenation catalyst applicable to the production of both aviation gasoline and synthetic rubber; (2) development to the pilot plant stage of a solvent process for separating sulfur compounds from high sulfur gasolines; (3) development on a pilot plant scale of an azeotropic process for purifying toluene and other aromatics; (4) discovery of a new method for synthesizing extremely viscous lubricating oil, starting with low melting waxes; (5) development of a continuous process for the production of acetic and succinic acids (both of which are key materials in the formulation of plastics and lacquers) by oxidation of paraffin gasoline."

Rubber Group Cancels Meetings

The Division of Rubber Chemistry of the American Chemical Society has canceled its meetings scheduled to be held in conjunction with the 103d meeting of the A.C.S. in Memphis, April 20-24, it is announced. The action was taken after a survey of the principal laboratories in the rubber industry disclosed the unanimous opinion that the time of the technical men should not be taken from the problems growing out of the present emergency.

New Patents

Compiled by R. E. Burnham, patent and trade-mark attorney, 511 Eleventh Street, NW, Washington, D. C., from whom copies may be obtained at rate of 25c each. State number of patent and name of inventor when ordering.

Catalytically treating hydrocarbons—Edgar C. Pitzer, Chicago, and Llewellyn Heard, Hammond, Ind., assignors to Standard Oil Co. (Ind.) Filed Feb. 21, 1940. No. 2,274,633.

Catalytic conversion process — Llewellyn Heard, assignor to Standard Oil Co. (Ind.) Filed Aug. 29, 1940. No. 2,274,634.

Process for production of hydrocarbons — Arno Scheuermann and Arnold Kotzschmar, Germany, assignors to Standard Catalytic Co. Filed March 1, 1940. No. 2,274,639.

Recovery of higher oxygen-containing organic compounds from crude oils obtained by catalytic hydrogenation of carbon oxides—Hans Soenksen and Herbert Grasshof, Germany, assignors to William E. Currie, New York. Filed Aug. 16, 1939. No. 2,274,750.

Alkylation of isoparaffins with ethylene (forming motor fuel)—William E. Bradley, Los Angeles, assignor to Union Oil Co. (Calif.) Filed May 2, 1938. No. 2,274,858.

Butadiene extraction—Egi V. Fasce, Baton Rouge, La., assignor to Standard Oil Development Co. Filed April 18, 1940. No. 2,275,135.

Cracking oil with synthetic catalytic compositions—Gerald C. Connolly, Baton Rouge, La., assignor to Standard Oil Development Co. Filed Dec. 6, 1938. No. 2,275,176.

Treatment of hydrocarbons—Ernest N. Hague, Chicago, assignor to Universal Oil Products Co. Filed May 11, 1939. No. 2,275,178.

Process for hydrogenating hydrocarbons—Vladimir N. Ipatieff and Ben B. Corson, Chicago, assignors to Universal Oil Products Co. Filed April 3, 1939. No. 2,275,181.

Treating hydrocarbon fluids — Francis O. Rice, Montgomery County, Md., assignor to Process Management Co. Filed June 1, 1939. No. 2,275,232.

Process for treating hydrocarbons—Russell P. Dunmire, Shaker Heights, Ohio, assignor to Buckeye Laboratories, Inc. Filed Aug. 25, 1941. No. 2,273,846.

Reactivation of hydrogenating catalysts, and apparatus for catalysis and use thereof—Eugene J. Houdry, Ardmore, Pa., assignor to Houdry Process Corp. Filed Feb. 24, 1939, and Aug. 5, 1937. Nos. 2,273,864 and 2,273,865.

Process for desalting petroleum—Frank E. Wellman, Wichita Falls, Texas. Filed March 18, 1938. No. 2,273,915.

Method of hydrocarbon oil conversion—Bruce Sheppard, Bridgewater township, N. J., assignor to Petroleum Conversion Corp. Filed July 6, 1939. No. 2,274,003.

Process improvement for solvent extracting operations—George T. Atkins, Jr., Highlands, Texas, assignor to Standard Oil Development Co. Filed July 29, 1938. No. 2,274,030.

Fractionating plate construction—George B. Cook, Summit, and Joseph V. Marancik, Roselle, N. J., assignors to Standard Oil Development Co. Filed Aug. 10, 1940. No. 2,274,041.

Refining process—Walter H. Rupp, Mountainside, N. J., assignor to Standard Oil Development Co. Filed Feb. 18, 1941. No. 2,274,094.

Process for selective oxidation or dehydrogenation of petroleum hydrocarbons—Herman B. Kipper, Accord, Mass. Filed May 4, 1940. No. 2,274,204.

Method of separating wax from oils—Malcolm H. Tuttle, New Rochelle, N. Y., assignor to Max B. Miller & Co., New York. Filed June 9, 1938. No. 2,274,223.

Vapor phase isomerization of hydrocarbons—Frank M. McMillan, Berkeley, Calif., assignor to Shell Development Co. Filed April 13, 1940. No. 2,274,624.

Process of preparing nitrohydroxy-hydrocarbons from hydrocarbons—Carleton Ellis, Montclair, N. J., assignor to Standard Oil Development Co. Filed May 11, 1940. No. 2,274,630.

Stabilized viscous mineral oil composition—Lyle A. Hamilton, Kenonah, and Everett W. Fuller, Woodbury, N. J., assignors to Socony-Vacuum Oil Co. Filed Nov. 22, 1939. No. 2,273,862.

Process for oxidation of aliphatic hydrocarbons — Robert A. Gerlicher, Baton Rouge, La., assignor to Standard Oil Development Co. Filed Sept. 16, 1938. No. 2,274,057.

Preparation of carbon monoxid-hydrogen gas mixtures for hydrogenation—Frank A. Howard and Edward B. Peck, Elizabeth, N. J., assignor to Standard Catalytic Co. Filed Sept. 1, 1936. No. 2,274,064.

Compounded mineral oil—James O. Clayton, Bruce B. Farrington, and Robert L. Humphreys, Berkeley, Calif., assignors to Standard Oil Co. (Calif.) Filed Nov. 26, 1938. No. 2,274,291.

Compounded oil—Lloyd H. Mulit, Richmond, Calif., assignor to Standard Oil Co. (Calif.) Filed Jan. 22, 1940. No. 2.274.302.

Process for purifying synthetic soaps—John J. Owen, Baton Rouge, La., assignor to Standard Oil Development Co. Filed Nov. 19, 1938. No. 2,274,632.

Diesel fuel—Louis A. Clarke, Fishkill, N. Y., assignor to The Texas Co. Filed Oct. 11, 1938. No. 2,274,665.

Diesel fuel—Louis A. Clarke, Fishkill, and Ernest F. Pevere, Beacon, N. Y., assignors to The Texas Co. Filed Oct. 11, 1938. No. 2,274,666.

Hydrocarbon copolymer and method of preparing same—William H. Smyers, Westfield, N. J., assignor to Standard Oil Development Co. Filed July 17, 1937. No. 2,274,749.

Polymerization product and method of preparing and using same—Eugene Lieber, Staten Island, and Marvin E. Thorner, Brooklyn, assignors to Standard Oil Development Co. Filed June 29, 1940. No. 2,274,864.

Process of treating catalysts—Marvan P. Matuszak, Bartlesville, Okla., assignor to Phillips Petroleum Co. Filed April 29, 1938. No. 2,274,988.

Recovery of ethyl chloride from ethyl chloride-butane mixtures—Charles N. Kimberlin, Baton Rouge, La., assignor to Standard Oil Development Co. Filed Nov. 3, 1939. No. 2,275,151.

Manufacture of catalysts—Vladimir N. Ipatieff and Raymond E. Schaad, Chicago, assignors to Universal Oil Products Co. Filed June 20, 1940. No. 2,275,182.

Reactivation of contact masses—Lev A. Mekler, Chicago, assignor to Universal Oil Products Co. Filed April 6, 1940. No. 2,275,184.

Hydrogen fluoride alkylation
a new U.O.P. process

Uncle Sam's 100 octane gasoline program and refiners who are striving to fulfill it will reap substantial benefit from a new and better catalytic alkylation process which was disclosed to the industry when Universal's U. S. Patent 2,267,730 was granted on December 30, 1941

Alkylate is a vital constituent of 100 octane gasoline

A number of plants to use the new process are now under way

Hydrogen fluoride is the new catalyst, use of which is covered by the patent It sets a new high mark in efficiency

The process is continuous and chemical costs are low The catalyst is used over and over again and losses are small

The Universal hydrogen fluoride alkylation process is available only under license from Universal

Isn't it worth your while to investigate?

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

THE REFINERS INSTITUTE OF PETROLEUM TECHNOLOGY

British Specifications Revised For Aviation Fuel Base Stocks

LATE official revisions of the specifications for petroleum products of the British Petroleum Mission of Washington, under which that government's war requirements are purchased through the provisions of the Lend-Lease act, include:

1—Revisions in specifications for unleaded base stocks for 100-octane number aviation fuel. Until last December, this product was covered by only one specification (Ref. No. 1200). At that time, this specification, covering aviation gasoline to modified U. S. Army and Navy specifications, was redrafted and a second, Ref. No. 1700, was added. This latter was described by D. V. Glass, chief statistical officer of the British Petroleum Mission, as being the straight U. S. Army and Navy specification, with the exception that it requires the fuel to register 100-octane number with the addition of 3 ml. of tetraethyl lead, instead of 4 ml. The latest revisions, issued as of Feb. 14, differ from those issued in December only in allowing a 37.5% maximum recovery by distillation at 167° F., in place of 30%.

2—Revised specifications, issued as of Jan. 31, 1941, for unleaded base stocks for 87 and 91-octane number aviation fuels.

3—Revised specifications for special refinery gas oil.

4—Revisions in a number of pool fuel oils, both light and heavy fuels.

5—Modifications in specifications for hydraulic and transformer oils and mineral jelly.

The revised specifications are published below, or the revisions shown, where the difference is only minor in nature from those previously published; and the reference numbers and dates the specifications were issued are also shown.

For earlier publication in REFINING TECHNOLOGY of the specifications of the British Petroleum Mission, the reader is referred to the Dec. 24, 1941, issue, p. R-408, and the Jan. 7, 1942, issue, p. R-10.

Unleaded Base for 100 O.N. Aviation Fuel

Ref. No. 1201; Feb. 14, 1942: Awaiting approval.

(a) All aviation gasoline furnished under this schedule shall be in strict accordance with Specification AN-VV-F-781, dated Sept 26, 1940, and Amendment No. 3 thereto, dated June 6, 1941, with the changes and additions indicated below. The numbered paragraphs refer to corresponding paragraphs in Specification AN-VV-F-781.

(Note: Publication of the official U. S. Army and Navy specifications referred to has not been permitted. The oil companies have them, or their authorized representatives may secure them, through the proper channels in Washington.)

A-1a Add: AN-VV-F-748 Fuel: Aircraft-Engine, General Specification (Method for Supercharged Knock Test; CFR, AFD 3-C Method).

E-6 Colour: The colour of the fuel shall be not darker than plus 25 Saybolt.

E-8 Knock Ratings:

(a) The knock rating of the fuel (after the addition of not more than 4.0 millilitres of tetraethyl lead per U. S. gallon) shall be not less than 100 octane number by the method prescribed in Specification AN-VV-F-746.

(b) The rich mixture rating of the fuel (with the addition of not more than 4.0 millilitres tetraethyl lead per U. S. gallon) by the method prescribed in Specification AN-VV-F-748 (CFR, AFD 3-C) shall be not less than that of either:

(i) the approved British Air Ministry Reference Fuel, supplies of which will be made available through the British Petroleum Mission, or

(ii) Reference Fuel S[1] after the addition of 1.25 millilitres of tetraethyl lead per U. S. gallon.

The rating shall be obtained at the fuel-air ratio at which the maximum I.M.E.P. (indicated mean effective pressure) for the reference fuel (approved B.A.M. Reference Fuel, or Reference Fuel S1 plus 1.25 millilitres tetraethyl lead per U. S. Gallon) occurs.

E-10(c) Distillation:
Recovery at 75°C (167°F): 10% Min. 37½% Max.
Recovery at 100°C (212°F): 50% Min.
Recovery at 150°C (302°F): 90% Min.

E-12 Lead Content: The fuel shall contain no tetraethyl lead. The concentration of tetraethyl lead which must be added to the fuel to obtain the required knock ratings shall not exceed 4.0 millilitres per U. S. gallon.

F-5(c): The knock ratings of the fuel shall be determined by the methods given in Specifications AN-VV-F-746 and in AN-VV-F-748 (CFR Supercharged Method AFD 3-C).

Aromatics: The aromatic content shall not exceed 20% by Volume.

Unleaded Base for 100 O.N. Aviation Fuel

Ref. No. 1701; Feb. 14, 1942: Awaiting approval.

(a) All aviation gasoline furnished under this schedule shall be in strict accordance with Specification AN-VV-F-781, dated Sept. 26, 1940, and Amendment No. 3 thereto, dated June 6, 1941, with the changes and additions indicated below. The numbered paragraphs refer to corresponding paragraphs in Specification AN-VV-F-781.

E-6 Colour: The colour of the fuel shall be not darker than plus 25 Saybolt.

E-8 Knock Ratings:

(a) the knock rating of the fuel (after the addition of not more than 3.0 millilitres of tetraethyl lead per U. S. gallon) shall be not less than 100 octane number by the method prescribed in Specification AN-VV-F-746.

E-10(c): Distillation:
Recovery at 75°C (167°F): 10% Min. 37½% Max.
Recovery at 100°C (212°F): 50% Min.
Recovery at 150°C (302°F): 90% Min.

E-12 Lead Content: The fuel shall contain no tetraethyl lead. The concentration of tetraethyl lead which must be added to the fuel to obtain the required knock ratings shall not exceed 3.0 millilitres per U. S. gallon.

Aromatics: The aromatic content shall not exceed 20% by volume.

Unleaded Base for 91 O.N. Aviation Fuel

Ref. No. 1900; Jan. 31, 1942.

a. All aviation gasoline furnished under this schedule shall be in accordance with Specification AN-VV-F-776 dated Oct. 15, 1940 and Amendment 3 thereto dated June 6, 1941 with the changes indicated below. The numbered paragraphs refer to corresponding paragraphs in Specification AN-VV-F-776.

E-8. Knock Rating. The knock rating of the fuel (after the addition of not more than 4.0 millilitres of tetraethyl lead per U. S. gallon) shall not be less than 91 octane number when determined by the method given in Specification AN-VV-F-746.

E-10c. Distillation:

Temperature Degrees.	Fuel Evaporated (min.) Per cent.
75°C. (167°F)	20
100°C. (212°F)	50
150°C. (302°F)	90

Final boiling point 180°C (356°F) max.

E-12 The fuel shall not contain tetraethyl lead.

Unleaded Base for 87 O.N. Aviation Fuel

Ref. No. 1800; Jan. 31, 1942.

(This specification is the same as for 91 O.N. aviation fuel, except that the knock rating shall not be less than 87 octane number by the A.S.T.M. method.)

Special Refinery Gas Oil

No. 2301; Feb. 10, 1942.

Complete specifications are as follows:

The oil shall be a straight run Gas Oil from Natural Petroleum and shall conform to the following specifications:

TEST	METHOD F.S.B.	METHOD A.S.T.M.	SPECIFICATIONS Min.	SPECIFICATIONS Max.
Composition	—	—	Must be 100% distillate	
Flash Point (Pensky-Martens) °F.	110.22	D 93-40	150	—
Pour Point °F.	20.15	D 97-39	—	20
Water and Sediment % Vol.	—	D 96-40	—	0.1
Distillation	—	D158-41	—	—
% Recovery @ 617°F.	—	—	95	—

The overhead distillate obtained from the A.S.T.M. distillation

KIMBLE *Hand Made* CONTAINERS

For Assurance

CH 4275—4 OZ. OIL SAMPLE BOTTLE

The Visible Guarantee of Invisible Quality

KIMBLE GLASS COMPANY . . . . VINELAND, N. J.

NEW YORK • PHILADELPHIA • DETROIT • CHICAGO
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to 617°F. shall conform to the following specifications:

Distillation	—	D158-41	—	—
% Recovery @ 410°F.	—	—	—	5
Distillation Index Number	Note 1		—	570
Aniline Point Increase °C.	Note 2		4	—
Bromine Number (Francis Method	—	—	—	5
Aromatic Hydrocarbons Vol. %	Note 3		4.0 + X + P	
Paraffin Hydrocarbons Vol. %	Note 3		—	18
Nitrogen Parts Per Million by Weight	Note 4		—	80

Note 1: *Distillation Index* is obtained by adding together the temperatures (in degrees Fahrenheit) of the I.B.P., the F.B.P. and the temperatures at which 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80% and 90% are recovered and dividing the sum by eleven.

Note 2: The Aniline Point increase is the difference between the Aniline Points in °C. (as determined by A.S.T.M. D611—41T) on the dried sample before and after sulphuric acid extraction. The sulphuric acid extraction is carried out by vigorously shaking 50 mls. of the sample for 30 minutes with 100 mls. of sulphuric acid of 99% plus or minus 0.5% by weight concentration. The acid layer is removed and the oil washed thoroughly with water, dried with anhydrous sodium sulphate, and the aniline point again determined.

(Note 3 describes the method for determining volume in percent of aromatic and paraffin hydrocarbons.)

(Note 4 describes the method for determining the nitrogen content in parts per million.)

Pool Vaporizing Oil

Pool No. 12; Feb. 20, 1942.

Revised as published in REFINING TECHNOLOGY Dec. 24, 1941, p. R-410, to include specifications and test method for gum stability as follows:

Gum Content (mgms/100 mls.) (Note 2) .....20 max.
Potential Gum (mgms/100 mls.) (Note 3) .....30 max.

Note 2: Method to be used is General Motors test for preformed gum. This method is essentially the same as A.S.T.M. Method D.381-36, except that the temperature of the effluent air must be from 345 to 360°F. instead of from 305 to 320°F., and the test is continued for 90 minutes instead of for 15 minutes (in addition to the initial evaporation period). The composition of the bath liquid must be modified in order to meet the higher temperature requirement of the General Motors method.

Note 3: Potential gum is increase in General Motors gum (see Note 2) after carrying out the accelerated gum test described in Specification AN-VV-F-781, but without the catalyst and with the time of heating reduced to four hours.

Kerosine, Pool Burning Oil

Pool No. 13; Revised Dec. 31, 1941: Awaiting approval.
and

Kerosine Pool Signal Oil

Pool No. 14; Feb. 20, 1942.

(Both revised as published in REFINING TECHNOLOGY Dec. 24, 1941, p. R-410, to show the specification for Wick Char (I.P.T. Burning Test K. 35T) in weight of dry char per kilogram, instead of per litre. Specified max. weights remain the same, 20 mgm for kerosine pool burning oil and 10 mgm for kerosine pool signal oil.)

Special Distillation Naphtha

Pool No. 16; Feb. 20, 1942.

Revised as published in REFINING TECHNOLOGY Dec. 24, 1941, p. R-410, to change the specification for the Corrosion and Gum Test as follows:

"100 c.c. of spirit when evaporated in a copper dish shall cause no grey or black corrosion, and the amount of deposit shall not exceed 3 mgms."

Pool Fuel Oil

Pool No. 23; Feb. 20, 1942.

Corrected and revised as published in REFINING TECHNOLOGY Dec. 24, 1941. p. R-410, as follows:

The maximum percent of ash corrected to 0.05.

Stability test has been dropped and the following substituted under Composition: "Must be a stable residual oil or blend."

Pool Heavy Fuel

Pool No. 25; Feb. 20, 1942.

Revised as published in REFINING TECHNOLOGY Dec. 24, 1941, p. R-410, as follows:

Stability test has been dropped and following substituted under Composition: "Must be a stable residual oil or blend."

W.D. Gas Oil

Pool No. 32; Feb. 20, 1942.

Pool Marine Diesel

Pool No. 30; Feb. 20, 1942.

Pool Diesel Oil

Pool No. 22; Feb. 20, 1942.

The above 3 revised as published in REFINING TECHNOLOGY Dec. 24. 1941, p. R-410, to include the following specification:

"Strong Acid Neutralization No. mgm. KOH/gm. . . . . Nil"; by Test Method 510.31 of Federal Specification Board, or D188-41T of A.S.T.M.

Special Heavy Naphtha

Pool No. 17; Feb. 20, 1942.

Complete specifications for this product, which have not been published in earlier issues of REFINING TECHNOLOGY, are as follows:

TEST	METHOD F.S.B.	METHOD A.S.T.M.	SPECIFICATIONS Min.	SPECIFICATIONS Max.
Composition	—	—	Must be straight run petroleum product	
Odour	—	—	Good merchantable	
Gravity (A.P.I.)	40.1	D287-39	52.3	58.4
Colour—Saybolt	10.12	D156-38	25.0	—
Doctor	520.31	—	Must pass	
Corrosion & Gum	—	—	100 c.c. of spirit when evaporated in a copper dish shall cause no grey or black corrosion, and the amount of deposit shall not exceed 3 mgms.	
% Sulphur (Lamp)	520.12	D 90-41T	—	0.10
Distillation	100.14	D 86-40	—	—
I.B.P. °F.	—	—	212	248
% Recovery @ 248°F.	—	—	—	30
F.B.P. °F.	—	—	311	329
Bromine No. (Francis Method)	—	—	—	3

Pool Gas Oil

Pool No. 21; Feb. 20, 1942.

Revised as published in REFINING TECHNOLOGY Dec. 24, 1941, p. R-410, as follows:

For Conradson Carbon on 10% residuum 0.12, substitute Conradson Carbon 0.05.

Add, "Strong Acid Neutralization No. mgm. KOH/gm. . . . . Nil."

Lagunillas Asphaltic Crude

Pool No. 34; Feb. 20, 1942.

The following replace former approximate specifications:

TEST	METHOD F.S.B.	METHOD A.S.T.M.	SPECIFICATIONS
Gravity (A.P.I.)	40.1	D287-39	17.5 (Approx.)
Viscosity S.U. @ 100°F.	30.43	D 88-38	1500 (Max.)
% Sulphur (Bomb)	520.22	D129-39	2.5 (Max.)
Pour Point °F.	20.15	D 97.39	Minus 5.0 (Max.)
Vol. % Content of 180-200 penetration Asphalt	—	—	50 (Approx.)
Yield of 400°F. end-point Gasoline by straight distillation	—	—	Approx. 9% by volume
Octane No. of straight run 400°F. end-point Gasoline	600.11	D357-41T	65 (Approx.)

Hydraulic Oil

Pool Lub. No. 14; March 6, 1942.

Revised as published in REFINING TECHNOLOGY Jan. 7, 1942, p. R-12, to make increase in Aniline Point, Deg. F., after extraction, 11.7 max., in place of 10.

Petrolatum

Pool Lub. No. 25; Feb. 6, 1942.

Revised as published in REFINING TECHNOLOGY Jan. 7, 1942, p. R-13, to add "Lead Free", making the Special Stipulation read: "To conform to British Ministry of Supply Specifications No. CS-1317A. 'Mineral Jelly G.S. Lead Free.'"

Transformer Oil

Pool Lub. No. 24; revised Dec. 29, 1941.

Revised as published in REFINING TECHNOLOGY Jan. 7, 1942, p. R-12, to add the following dielectric strength requirement: "The oil, on shipment, must withstand 30,000 volts as measured by the tests specified in British Standard Specification No. 148 (1933)."

778.3
645.1

Practical Methods For Storing Volatile Liquids

By D. E. Larson*

The large volumes of aviation gasoline and motor fuels which oil companies are called upon to supply in the nation's war program, present problems in the installation of storage facilities which will prevent volume losses through evaporation and deterioration of product. Consideration must also be given to fire safety.

Charts and other data are given which provide practical methods for estimating evaporation losses and other factors in selecting the type of storage that will provide greatest economy and safety under given operating conditions. A method is also presented for evaluating the cost items in storing volatile liquids to determine annual storage costs for various types of tanks.

This paper was presented at the meeting last November of the American Institute of Chemical Engineers, at Virginia Beach, Va.

Types of storage tanks at modern refinery. In the background are cylindrical tanks with floating roofs; in front of them are spheroid tanks and in the foreground a large noded spheroid tank—Photo courtesy Chicago Bridge & Iron Co.

IN ORDER to supply materials urgently needed for national defense, existing manufacturing facilities in key industries have been expanded and new plants are being constructed with all possible speed. Since delays cannot be tolerated all questions relating to plant design and construction must be settled instantly on the basis of the most reliable information available at the moment.

In the petroleum and chemical industries, many engineers, having assumed added responsibilities during the emergency, are being faced for the first time with the necessity of planning facilities for the storage of volatile liquid products in large quantities. Available data on this subject are meager; the purpose of this paper, therefore, is to present practical data which will assist the designer in selecting the type of storage best adapted to his particular storage problem.

In laying out a chemical plant or a petroleum refining unit, provision must be made for the storage in liquid form of various raw materials, finished products and products in intermediate stages of refinement. All of these liquids are valuable for, if they were not, the tremendous effort being made to produce them would not be justified. Since they are valuable, and since our defense dollars must be stretched to the limit, the designer will naturally attempt to select a type of storage capable of accomplishing the following results.

1. Retaining each product for the required period of time without *deterioration* or loss of quality. Some liquids may become contaminated or go "off specification" unless properly protected from contact with air, water, dust or other foreign substances.

2. Retaining the product without *loss of volume*. Evaporation and leakage are the primary sources of loss from storage containers. Losses from both sources can be eliminated by selecting the type of container best adapted to the service for which it is to be used.

3. Storing the product at the *lowest possible cost* per gallon commensurate with safety. As a rule, the type of container most nearly fulfilling the requirements listed above will provide the most economical storage even though its first cost is higher than that of other types.

4. Storing the product with the least possible *danger from fire*. Where defense materials are concerned, the ever present threat of sabotage makes the problem of fire protection doubly important. Fires must be prevented from starting and spreading.

In selecting the class of storage best suited to a particular set of conditions, the engineer has recourse to five basic types of tanks or containers. These are:

1. Atmospheric tanks with fixed roof.
2. Tanks with variable volume vapor spaces.
3. Floating roof tanks.
4. Pressure tanks.
5. Underground storage tanks.

All of these are containers constructed of steel plates using either riveted or welded construction. Other materials such as wood or reinforced concrete have been tried in tank construction, but steel is the only material yet used to any appreciable extent in storing volatile liquids.

(A brief description is given of the type of liquid storage tank consisting of a flat steel bottom, vertical cylindrical steel shell and a cone or dome-shaped steel roof, which is omitted here because of the familiarity of oil company engineers with such tanks.

The method by which breathing losses occur is described and it is stated that the actual volume of liquid lost as a result of tank breathing depends on a number of

*Development Engineer, Chicago Bridge & Iron Co. Chicago.

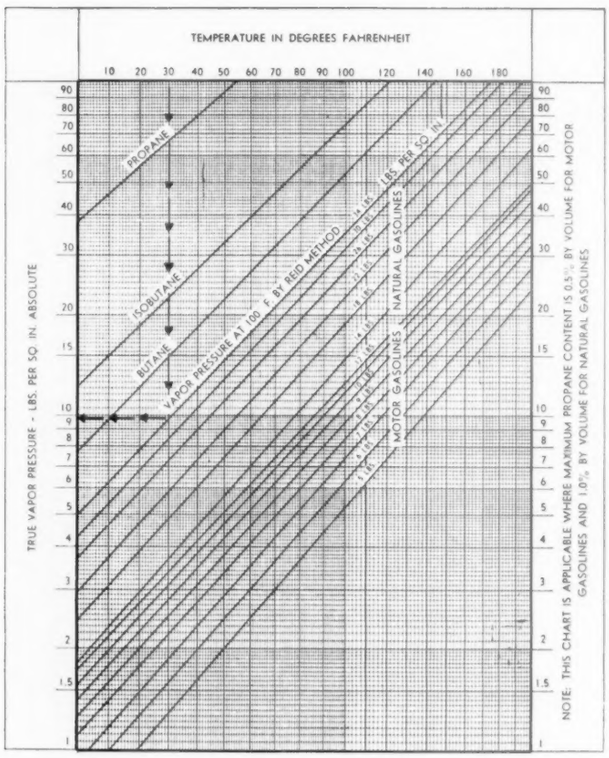
TEMPERATURE IN DEGREES FAHRENHEIT
TRUE VAPOR PRESSURE - LBS. PER SQ. IN. ABSOLUTE
PROPANE
ISOBUTANE
BUTANE
VAPOR PRESSURE AT 100° F BY REID METHOD - LBS. PER SQ. IN.
MOTOR GASOLINES
NATURAL GASOLINES
NOTE: THIS CHART IS APPLICABLE WHERE MAXIMUM PROPANE CONTENT IS 0.5% BY VOLUME FOR MOTOR GASOLINES AND 1.0% BY VOLUME FOR NATURAL GASOLINES

Chart 1—Vapor pressures vs. temperatures for motor and natural gasolines

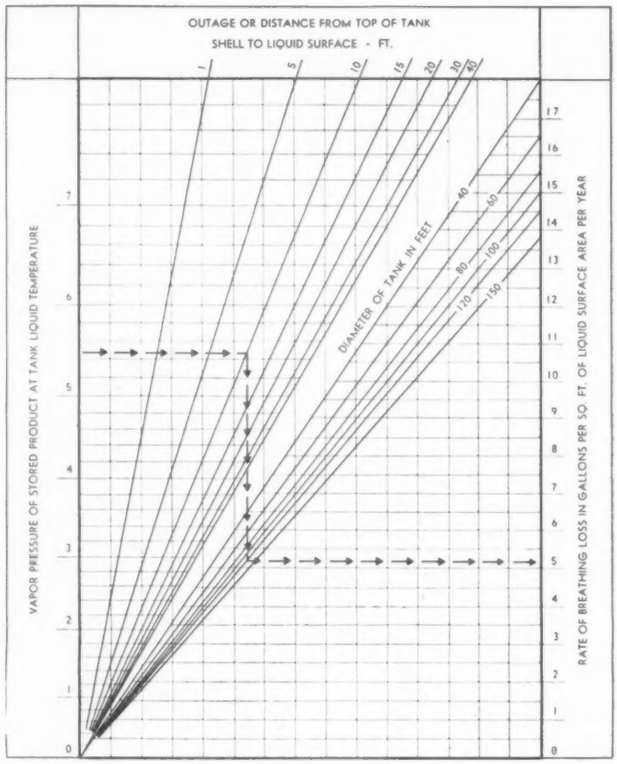
OUTAGE OR DISTANCE FROM TOP OF TANK SHELL TO LIQUID SURFACE - FT.
VAPOR PRESSURE OF STORED PRODUCT AT TANK LIQUID TEMPERATURE
DIAMETER OF TANK IN FEET
RATE OF BREATHING LOSS IN GALLONS PER SQ. FT. OF LIQUID SURFACE AREA PER YEAR

Chart 2—Breathing losses from cone roof tanks with conservation vents

factors, including the volatility of the stored product, variations in atmospheric temperature, size of tank, volume of vapor space and outside color of the tank roof and shell. The author continues:)

Vapor Pressure-Temperature Relations

The actual vapor pressure of the liquid in a tank at tank temperature is one of the principal factors affecting the rate of evaporation loss. This vapor pressure may be read directly from the vapor pressure-temperature curves in Chart 1 provided the Reid vapor pressure of the stored product and the tank liquid temperature are known.

In measuring the vapor pressure of a liquid by the Reid method, a portion of the sample is vaporized with the result that the Reid vapor pressure, reported in lbs. per sq. in. abs. at 100° F. is slightly lower than the true absolute vapor pressure at this temperature. Consequently, the Reid vapor pressure must be corrected to obtain the true vapor pressure. The proper correction has been included in Chart No. 1. The curves show the true vapor pressures at various liquid temperatures of motor and natural gasolines having Reid vapor pressures ranging from 5 to 34 lbs. per sq. in.

Estimating Breathing Losses

Chart No. 2 provides a simple and direct means for estimating the average rate of breathing loss from a light colored storage tank having a fixed steel roof equipped with conservation vent valves. The rate of loss indicated by the chart varies with the vapor pressure of the stored liquid, the volume of the vapor space and the size of the tank. Several oil companies have developed methods for estimating breathing losses based on the results of extensive evaporation tests. The curves in Chart No. 2 were plotted from data secured by averaging results calculated by the estimating methods of three oil companies and one tank manufacturer. The method of using the chart is indicated by the arrows.

Filling Loss

A second type of loss from a tank with fixed roof takes place when it is filled. This loss is commonly known as a filling loss or working loss. The manner of its occurrence is as follows: During the period when liquid is being withdrawn from the tank, evaporation takes place at the liquid surface. As a result the tank is filled with an air-vapor mixture after all of the liquid has been removed. As the tank is refilled, this air-vapor mixture is displaced through the roof vent by the incoming liquid. The total filling loss is not great for a tank that is filled and emptied only two or three times per year but it is a very serious item for a tank that is filled and emptied every few days. For this reason a volatile product tank that is to be worked rapidly should not be equipped with a fixed roof.

Estimating Filling Losses

The magnitude of the filling loss from an atmospheric storage tank may vary greatly depending upon the manner in which the tank is operated. If, for example, a tank, after standing full for some time could be emptied quickly and then refilled immediately before much vaporization could occur at the liquid surface, the gas displaced through the roof vent would be almost pure air and the filling loss would be negligible. Most storage tanks, however, are emptied at a relatively slow rate which allows the vapor space plenty of time to become saturated before refilling occurs. In this case a tank volume of saturated vapor is lost during each filling. In special cases where the velocity of the incoming liquid is so great as to cause turbulence and resultant vaporization, the loss during filling may greatly exceed the loss due to straight displacement of saturated vapor.

In estimating filling losses, most oil companies consider that the air-vapor mixture in the vapor space is in equilibrium with the liquid, and that a volume of air and vapor equal to the volume of the incoming liquid is dis-

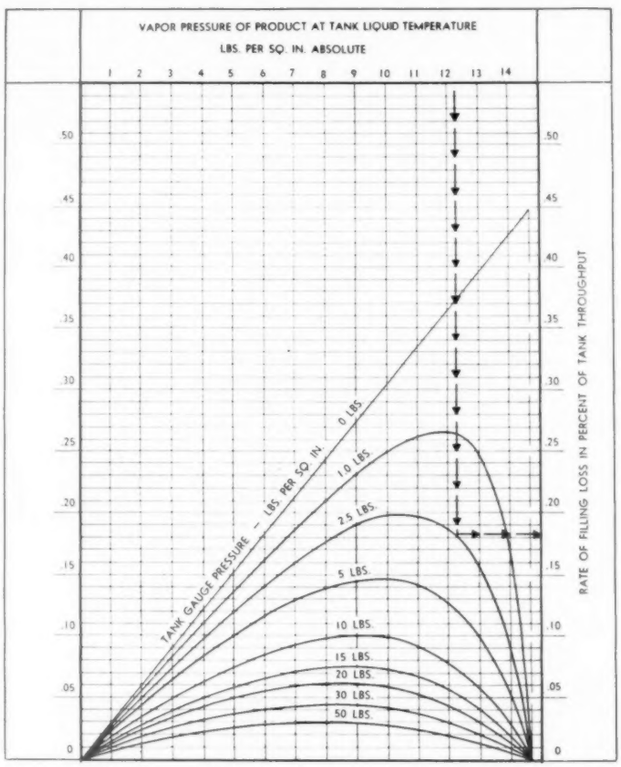

Chart 3—Theoretical filling loss rates for storage tanks and pressure vessels

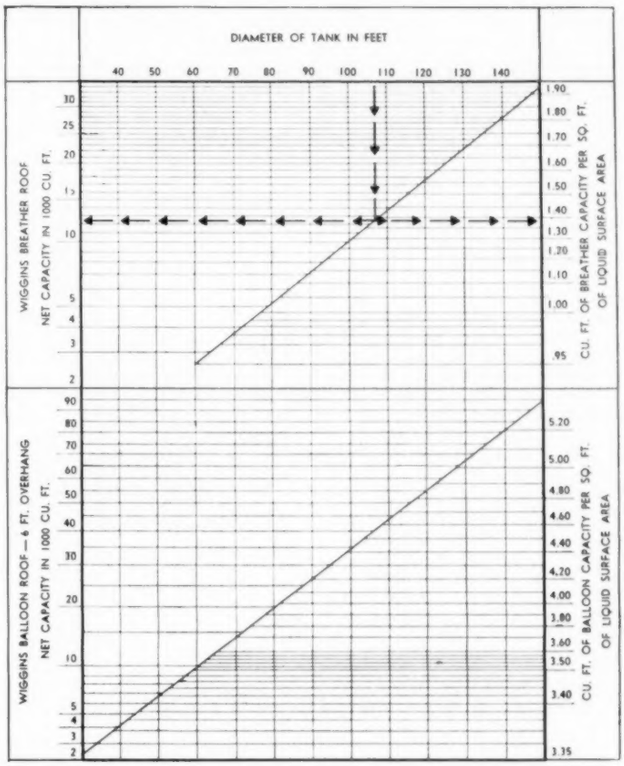
DIAMETER OF TANK IN FEET
WIGGINS BREATHER ROOF
NET CAPACITY IN 1000 CU. FT.
CU. FT. OF BREATHER CAPACITY PER SQ. FT. OF LIQUID SURFACE AREA
WIGGINS BALLOON ROOF — 6 FT. OVERHANG
NET CAPACITY IN 1000 CU. FT.
CU. FT. OF BALLOON CAPACITY PER SQ. FT. OF LIQUID SURFACE AREA

Chart 4—Capacities of Wiggins breather roofs and Wiggins balloon roofs

placed during each filling. The loss calculated on this basis and expressed in per cent of tank throughput may be obtained from the uppermost curve in Chart No. 3.

Boiling Loss

The methods outlined above for estimating breathing losses and filling losses apply only to liquids whose vapor pressure at tank temperature is below the boiling point. A liquid that is sufficiently volatile to boil either continuously or intermittently at atmospheric temperature and pressure will suffer extreme losses if placed in a conventional storage tank. Such products can be stored safely and economically only in pressure vessels.

(The types of roofs designed to provide a tank with a variable volume of vapor space to reduce breathing losses are described. The breather roof is a flexible steel diaphragm covering the top of the tank. The balloon roof is a similar diaphragm extended beyond the tank shell to provide greater capacity. The author continues:)

The breather roof which has a relatively small variable volume was developed principally for use on full standing storage tanks. It will prevent all breathing loss from motor gasoline or a product of similar properties provided the tank is fully or nearly full. The balloon roof which has a much greater capacity will prevent breathing losses from tanks that are only partially filled. Chart No. 4 gives the total capacities of breather roofs and balloon roofs in cu. ft. and also the unit capacities in cu. ft. per sq. ft. of liquid surface area.

Chart No. 5 shows the per cent reduction in breathing loss that may be effected by using balloon or breather roofs instead of cone roofs. The method of reading the chart is indicated by the arrows.

Although roofs of the variable volume type are effective in reducing *breathing losses*, they do not effect a material saving in *filling losses* under average conditions of tank operation. For this reason, they are best adapted to slow working tanks in which the annual loss from breathing is several times as great as the loss from filling. Breather and balloon roofs are used extensively at lake

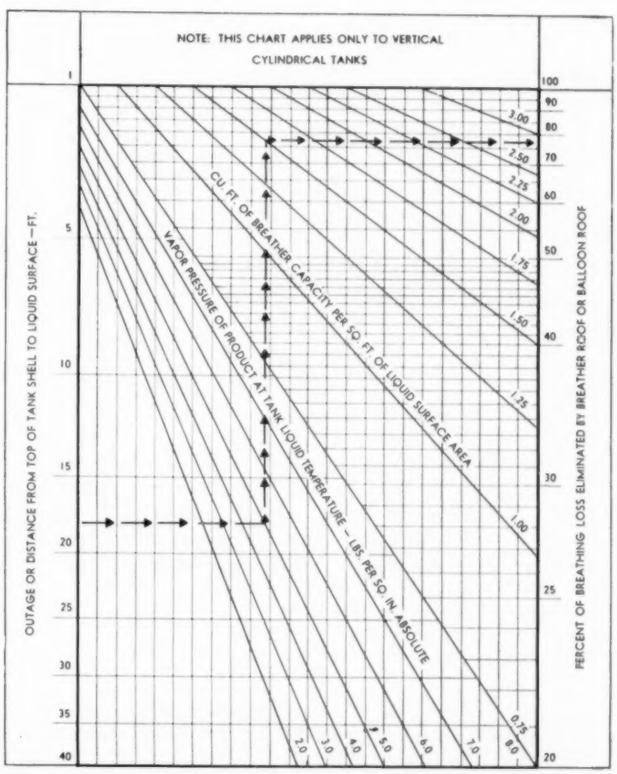
NOTE: THIS CHART APPLIES ONLY TO VERTICAL CYLINDRICAL TANKS
OUTAGE OR DISTANCE FROM TOP OF TANK SHELL TO LIQUID SURFACE — FT.
CU. FT. OF BREATHER CAPACITY PER SQ. FT. OF LIQUID SURFACE AREA
VAPOR PRESSURE OF PRODUCT AT TANK LIQUID TEMPERATURE – LBS. PER SQ. IN. ABSOLUTE
PERCENT OF BREATHING LOSS ELIMINATED BY BREATHER ROOF OR BALLOON ROOF

Chart 5—Reduction in breathing loss due to breather capacity

FOR *"ALL OUT"* AVIATION G

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ALKYLATION—Processes for preparing synthetic aviation blending stocks of high quality and in high yield.

GAS-DEHYDROGENATION—Catalytic conversion of paraffin hydrocarbons to corresponding olefins, such as butane to butylene.

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N GASOLINE PRODUCTION

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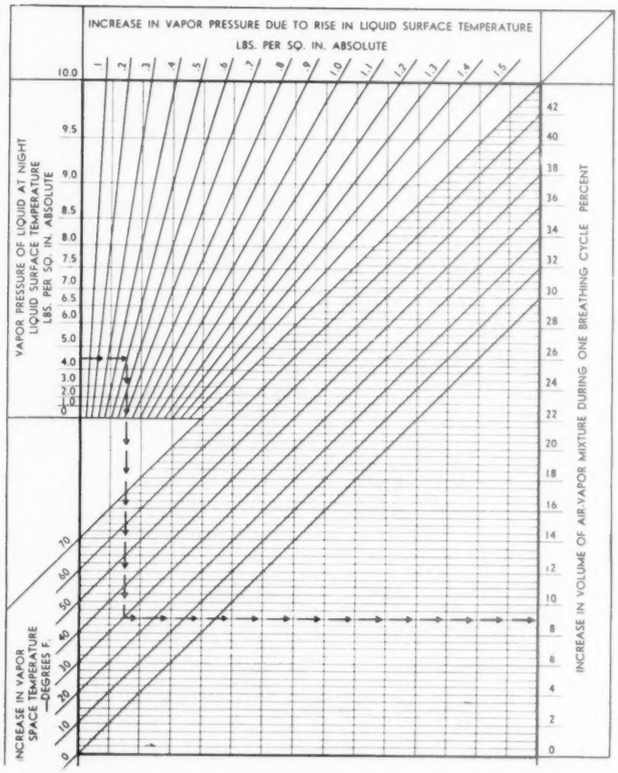
INCREASE IN VAPOR PRESSURE DUE TO RISE IN LIQUID SURFACE TEMPERATURE
LBS. PER SQ. IN. ABSOLUTE
VAPOR PRESSURE OF LIQUID AT NIGHT LIQUID SURFACE TEMPERATURE LBS. PER SQ. IN. ABSOLUTE
INCREASE IN VAPOR SPACE TEMPERATURE —DEGREES F.
INCREASE IN VOLUME OF AIR-VAPOR MIXTURE DURING ONE BREATHING CYCLE PERCENT

Chart 6—Expansion of air-vapor mixtures in atmospheric storage tanks

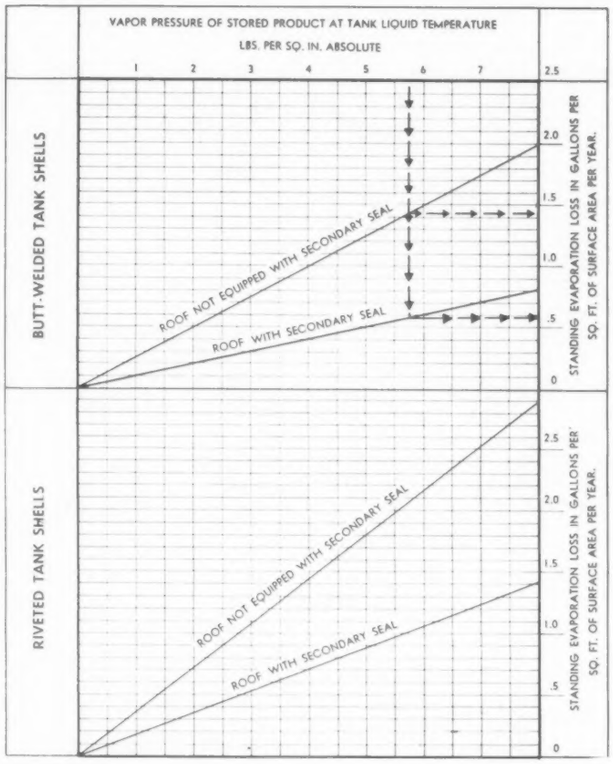
VAPOR PRESSURE OF STORED PRODUCT AT TANK LIQUID TEMPERATURE
LBS. PER SQ. IN. ABSOLUTE
BUTT-WELDED TANK SHELLS
ROOF NOT EQUIPPED WITH SECONDARY SEAL
ROOF WITH SECONDARY SEAL
STANDING EVAPORATION LOSS IN GALLONS PER SQ. FT. OF SURFACE AREA PER YEAR.
RIVETED TANK SHELLS
ROOF NOT EQUIPPED WITH SECONDARY SEAL
ROOF WITH SECONDARY SEAL
STANDING EVAPORATION LOSS IN GALLONS PER SQ. FT. OF SURFACE AREA PER YEAR.

Chart 7—Rates of evaporation loss from tanks with Wiggins pontoon roofs

and river terminals which are supplied by barge or tanker shipments and must therefore go through the closed navigation season without refilling.

Expansion of Air-Vapor Mixtures

A balloon roof is sometimes connected through vapor lines to one or more adjacent tanks with cone roofs, thus serving as a gasholder for a group of tanks. The volume of gasholder capacity required may be determined by estimating the probable expansion of the air vapor mixture in each tank under maximum temperature conditions and then totalling these expansions. Chart No. 6 provides an easy means for estimating the expansions in individual tanks. It is used in the manner indicated by the arrows.

Floating Roofs

(The type of tank roof is described which floats in the liquid, rising or falling as the tank is filled or emptied. Because it eliminates all filling losses, the floating roof tank is used extensively for storage of volatile liquids, such as aviation fuels, motor gasoline and light crude oils. Other advantages of this type of tank roof are said to be the elimination of the fire hazard and a greater life expectancy, as compared with other types of roofs, in service on sour oils or distillates. This is due to the fact the underside of the deck is in direct contact with the liquid. This eliminates oxygen from the air, thus decelerating the rate of corrosion. The text continues:)

Rate of Loss from Floating Roof Tanks

The rate of evaporation loss from a tank equipped with a pontoon roof depends primarily upon the vapor pressure of stored product and upon the efficiency of the seal used in sealing the space between the rim of the roof and the tank shell.

Most of the early pontoon roofs were installed in tanks with riveted shells. The seal was made up of a series of steel shoes supported and held against the tank shell by hangers mounted on the deck of the roof. Adjacent shoes were joined by vertical strips of flexible material called intershoe seals, and the tops of all shoes were connected to the roof deck by a continuous strip of vaportight fabric. The upper curve in the lower half of Chart No. 7 indicates the standing storage loss from roofs equipped with this type of seal. It was plotted from data obtained by averaging the results of evaporation tests made by two oil companies and one tank manufacturer.

The advent of tanks with smooth butt welded shells made it possible to extend the length of the shoes thus reducing the number of intershoe seals. This combined with the closer contact between shoes and tank shell helped to reduce losses to the values indicated by the uppermost curve in the top half of Chart No. 7. The small standing storage loss that does occur from a floating roof tank is caused mainly by the action of the wind which tends to erode the vapors out of the narrow space between the shoes and the tank shell. The addition of a secondary seal at the top of the steel shoe to close off this space has aided materially in reducing loss from this source. The secondary seal which is now furnished as standard equipment on roofs for both riveted tank shells and welded shells, prevents wind currents from circulating behind the shoes. The estimated losses from pontoon roofs equipped with secondary seals are given by the lower curves in the top and bottom portions respectively of Chart No. 7.

Pressure Storage

(The types of plain spheroid and noded spheroid pressure containers capable of withstanding internal gas pressures ranging from 5 lbs. per sq. in. upward are described. These containers are said to provide practical means for storing products having vapor pressures high enough to cause continuous boiling at atmospheric pressure, such as natural gasoline and liquefied petroleum gases.

Since the boiling temperature of a liquid can be raised by increasing the pressure acting on its surface, the author points out, it follows that boiling losses can be prevented by increasing the pressure to a value just greater than the vapor pressure of the liquid. In a pressure vessel, as vaporization takes place at the liquid sur-

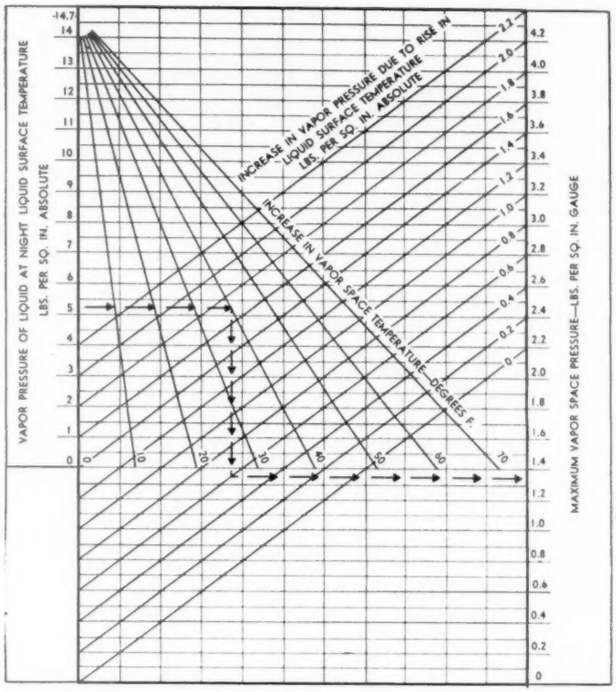
VAPOR PRESSURE OF LIQUID AT NIGHT LIQUID SURFACE TEMPERATURE LBS. PER SQ. IN. ABSOLUTE
MAXIMUM VAPOR SPACE PRESSURE—LBS. PER SQ. IN. GAUGE
INCREASE IN VAPOR PRESSURE DUE TO RISE IN LIQUID SURFACE TEMPERATURE LBS. PER SQ. IN. ABSOLUTE
INCREASE IN VAPOR SPACE TEMPERATURE—DEGREES F.

Chart 8—Pressures of air-vapor mixtures in pressure containers

face, the pressure in the vapor space increases. This, in turn, raises the boiling temperature of the liquid. As a result, vaporization continues only until the vapor space pressure is equal to the vapor pressure of the stored liquid at its surface temperature.

"All vapor loss from a highly volatile product can be prevented by storing it in a pressure container designed to withstand a pressure just greater than the vapor pressure developed by the liquid at the highest temperature likely to be reached by its surface," it is stated. "The working pressure of the pressure container is usually stated in lbs. per sq. in. gauge. Atmospheric pressure must be added to this gauge pressure to determine the amount of pressure the vessel will safely withstand in lbs. per sq. in. absolute."

Plain spheroid pressure vessels are constructed in capacities of from 2500 to 40,000 bbls., and for pressures ranging from 5 to 30 lbs. per sq. in. Spheroids of the noded type are available in capacities from 40,000 to 120,000 bbls. and for working pressures from 2.5 lbs. to 20 lbs. per sq. in. The author continues.)

Filling losses for pressure containers may be estimated with the aid of the curves in Chart No. 8. These curves are based on the assumption that the velocity of the incoming liquid is sufficiently low to allow vapor to be reabsorbed at the liquid surface as filling proceeds. If the pumping-in rate is very high, the per cent of filling loss may be higher than that indicated by the chart. The curves are also based on the assumption that the vessel is emptied and then refilled in one continuous operation which may or may not be true under actual operating conditions. If withdrawals and subsequent refilling are made in small increments representing only a fraction of the vessel's total capacity, it may be operated without any filling loss whatever, consequently the values shown in Chart No. 3 must be adjusted to reflect actual operating conditions.

Underground Storage Tanks

Although the national defense program has aroused a great deal of interest in underground storage tanks, very little information on the subject has been made public for the reason that all information relating to the design and location of underground tank for the armed forces is a carefully guarded military secret.

Generally speaking, underground tanks will cost at least twice as much as comparable tanks located above ground. It follows that unless some unexpected result is achieved by placing storage underground, there can be no justification for its use from a purely economic standpoint. The two principal reasons for placing storage underground are as follows:

(1) To provide concealment from invading enemy air forces.

(2) To comply with city ordinances requiring tanks to be placed underground for the purpose of reducing fire hazard in congested areas.

From the standpoint of operation, there are two classes of underground storage tanks. The first employs a water displacement system in which each gallon of product withdrawn from the tank is replaced by an equal volume of water. This eliminates the vapor space thereby achieving the same result that is secured by the use of a floating roof in an above ground tank. There can be no vapor loss from a tank operated in this manner. Likewise there can be no loss in quality unless the product happens to be one that may be affected adversely by contact with water. The water displacement system has been used mainly for tanks of relatively small capacity. It is doubtful whether this system would be practical for large tanks due to the difficulty of handling the large volumes of water required to displace gasoline when such tanks are emptied.

The other type of underground storage may be thought of simply as an atmospheric tank placed below grade and reinforced to resist external earth pressure. There are, however, several important differences. The first is that the temperature variations in an underground tank are smaller than those in an above ground tank. The second is that any underground tank by virtue of the weight of the earth cover on top is capable of resisting some internal pressure. As a result of these two things, the underground tank has operating characteristics similar to those of an insulated above ground pressure tank. Thus, while an underground tank is subject to a certain amount of filling loss, it will eliminate all breathing loss thus enabling motor and aviation fuels to be stored for long periods with no deterioration in quality.

Selecting the Most Economical Storage

The cost of storing any volatile liquid is made up of the following items:

1. Initial cost of storage tanks amortized in some specified period of time.
2. Interest on the investment in tankage.
3. Cost of maintenance.
4. Cost of product lost by evaporation.

The method of evaluating these items in order to determine the most economical type of storage may be demonstrated by a typical example. Suppose we wish to know what type of 80,000 bbl. tank and roof will provide the lowest cost storage for the operating conditions listed below.

1. Product stored = 10 lb. *RVP* motor gasoline
2. Value of product = 6c per gallon
3. Size of container = 80,000 barrels
4. Annual throughput = 480,000 barrels (6 fillings)
5. Average outage = 20 ft. (average working condition)
6. Cost of containers = (see table)
7. Amortization period = 10 years
8. Rate of interest = 4 per cent
9. Evaporation losses = values obtained from charts for an average tank temperature of 60° F.

The cost of storing the gasoline under these conditions

TYPE OF ROOF AND TANK		CONE	BREATHER	BALLOON	PONTOON
ERECTED COST OF TANK*		$34,000	$37,000	$41,000	$41,000
ANNUAL EVAPORATION LOSS IN GAL.	Breathing	70,000	19,000	0	6,000
	Filling	32,000	32,000	32,000	0
	Total	102,000	51,000	32,000	6,000
1. Cost of Tank per Year		$ 3,400	$ 3,700	$ 4,100	$ 4,100
2. Ave. Yearly Interest @ 4%		680	740	820	820
3. Annual Maintenance Cost		100	100	100	250
4. Cost of Evaporation Loss @ 6 c Gal.		6,120	3,060	1,920	360
TOTAL YEARLY STORAGE COST		$10,300	$ 7,600	$ 6,940	$ 5,530
ANNUAL STORAGE COST IN c BBL.		12.9	9.5	8.7	6.9

*Based on welded storage tanks.

Table 1—Comparison of Storage Costs Secured with Various types of tanks

in tanks equipped with a cone roof, breather roof, balloon roof, and pontoon roof are analyzed in Table I. It will be noted that, in this case, the most economical storage is provided by the tank equipped with a floating roof. A similar analysis can easily be made to determine the type of roof or container best adapted to any particular set of storage conditions.

Fire Protection

Considerations other than economy often have some bearing on the selection of a storage container. One of these is fire safety. Nearly all fires of which there is any record have occurred in tanks having some sort of an opening to the atmosphere. It follows that those types of containers which reduce evaporation losses are also effective in decreasing fire hazard. The probability of a fire being ignited from a source outside the tank is directly proportional to the time during which venting occurs. Pressure vessels and tanks with variable volume vapor spaces eliminate practically all venting during periods of standing storage thereby reducing this probability to a minimum: The likelihood of an explosion inside a container of either type is very remote because the air-vapor mixture in the vapor space is normally too rich to support combustion. The ignition range of gasoline vapor is from ½ to 6 per cent vapor and from 94 to 99½ per cent air by volume. The vapor space mixture in tanks which eliminate breathing will usually have a vapor content above 6 per cent.

In time of war the threat of damage from air bombing or sabotage presents another problem that must be considered in selecting facilities for the storage of volatile liquids used for defense purposes. Underground storage provides an expensive but satisfactory means of safeguarding such products. In regions where the distance from possible enemy air bases makes above ground storage relatively safe, the use of tanks equipped with floating roofs is recommended as the best practical protection against sabotage. It would be possible for a saboteur to start a fire in the space between the rim of the roof and the tank shell, but such fires may be extinguished with comparative ease before any serious damage has been done to the tank or its contents.

Summary

The classes of service to which each of the five basic types of storage containers are best adapted may be summarized briefly as follows:

1. *Atmospheric tanks with fixed roofs* equipped with conservation vent valves are suitable for products of low volatility such as fuel oil, kerosine and heavy crude oil.

2. Tanks with roofs which provide a *variable volume vapor space* are used most advantageously in these ways:

A. *Breather Roofs* provide economical storage for light products such as motor gasoline or light crude oils in tanks which normally remain full or nearly full.

B. *Balloon Roofs* which have a relatively large volume afford the lowest cost storage for motor gasolines and similar products in slow working tanks which are filled and then emptied gradually over a period of several months.

3. *Floating Roofs* provide the most economical means for storing motor gasolines, light crude oils and other products of similar volatility in active tanks which are worked either continuously or intermittently. Floating roofs are also recommended for installations in which reduction in fire hazard is one of the prime considerations in selecting the type of tank.

4. *Pressure tanks* such as *spheres* and *speroids* afford the only practical method for storing natural gasoline, isopentane, butane and other light products which would suffer enormous losses from boiling in ordinary storage tanks.

5. *Underground storage* is much more costly than above ground storage and is used primarily for installations in which concealment is necessary for defense purposes or where tanks must be placed below surface to comply with city ordinances.

Every proposed installation for the storage of volatile liquid products presents a number of problems which must be analyzed carefully to determine the type or types of storage containers best suited to the job. The charts and other data presented herein provide a simple and direct means for estimating evaporation losses and selecting the type of storage that will provide the greatest safety and economy under any given set of operating conditions. It is hoped that this information will prove helpful to engineers in the petroleum and chemical industries.

INDEX TO ADVERTISERS

Refining Technology Section

(*See also page 47*)

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W.P.R.A. Hears Talks On Wartime Refining

(*Continued from page* 16)

refiners cut their gasoline yield and increase fuel oil yields proportionately. However, as individual refiners commented later, problems of operating technique were involved.

For the last 15 years, said one operator, Mid-Continent refiners have built and revamped their plants to produce higher quality motor fuels. Their distillation and fractionating systems are designed for efficient heat exchange. To cut down their cracking operations or alter the conditions under which the cracking units operate will change their heat exchange rates and may affect operating efficiency. Reducing the pressures on their "crackers" may lead to increased carbon and coking, he said.

Another operator said refiners, in stripping the heavy ends from gasoline to increase the yield of distillates would have to watch the vapor pressure and end points on their gasolines.

A refinery engineer, in commenting on the proposal that the gravity of heavy fuels be raised and the viscosity lowered, by adding 20% of gas oil, said that the blend would clog lines if virgin gas oil were mixed with a cracked residual fuel, that only a cracked gas oil could be blended with a cracked heavy fuel, it has been his experience.

One question several refiners asked was what would be done with operators who failed to shut their plant operations to conform with recommendations from the Petroleum Co-ordinator, but continued to produce as much motor gasoline as possible. A member of one of the district refining committees said this had been considered in Washington and there was a possibility that pools might be set up, in the refining districts, which would operate similarly to the pool in District One from which refiners are compensated for abnormally high transportation costs in moving material into the East Coast. Details have not been worked out, but ... s refiner thought some plan might be devised where the individual refiner adjusting his operations to the recommended yields and suffering financially thereby, might be compensated at the expense of another refiner who was unable to adjust his operations and continue to produce high yields of gasoline.

Gary Urges Mid-Co Refiners To Turn Out War Synthetics

In his talk at the morning W.P.R.A. session on "The Importance of Refining in Wartime Economy", Director Gary urged the refiners of the Mid-Continent and the central states, particularly the small plants, to study their individual operations and see how they could contribute to the required supplies of wartime products, aviation gasoline, fuel oils and lubricants. He suggested some of the ways in which the refiners in this territory could aid in meeting these requirements.

Mr. Gary stated it was imperative for the small refiners, in their own interests, to work out proposals so they can furnish the new fuels possible only through synthetic methods. He drew a picture of a petroleum refining industry entirely changed in the nature of its operation by wartime demands, and said that the markets for these products would continue after the war. Motor cars have already been designed, and will be manufactured, to operate on 100-octane fuel, when the auto factories go back to making cars, he said. He also predicted a large demand for aviation fuel will continue following the war. "We will have the planes and the facilities to make them in great numbers, and we will have many thousands of trained flyers," he said. "With these facilities commercial aviation will be greatly stimulated." Mr. Gary urged refiners to submit proposals to Washington for new units to make wartime products, either individually or in groups.

He described in particular the work of the Process and Research branch of the refining division of the Office of Petroleum Co-ordinator, which is in charge of Cary R. Wagner, director of research and development work for the Pure Oil Co., now on leave from that company, and stationed in Washington. He said this group was now studying and compiling data on various processes and designs for plants, its aim being to finally arrive at a standard design for a refinery which would produce principally the new synthetic products and a minimum of motor gasoline. Among the products cited for such plants were 100-octane gasoline, butadiene, toluene, styrene, ethyl alcohol. "Such plants are economically feasible," stated Mr. Gary, "and the government would not need to hold an umbrella over them."

Difficult Times Ahead

He said the present days were the most difficult times the petroleum refining industry had ever faced, due to the great change in product requirements. "Synthetic methods are being introduced with which many refiners are not familiar, yet their use must be stimulated to secure adequate commercial supplies of the new products," he told the W.P.R.A.

To show the continuing research into new products, Mr. Gary stated that work was now being done with aviation fuels of better than 100-octane number, which would give planes more pay load and greater cruising range. He also said that the use of rich fuel mixtures was being studied for planes, which would increase their efficiency. He said this would call on the oil industry to supply even larger volumes of aviation fuel. The British have adopted rich mixture performance tests as part of their specifications for highest grades of aviation gasoline. To show the increase in requirements for aviation fuel, he stated, that, while as recently as last summer 100-octane fuel was not being made in large volume in refineries in this country, that supplies at the rate of 250,000 bbls. a day are now being considered for the latter part of 1942.

In discussing the rubber situation, Mr. Gary said there was no limit to what the oil industry could do in making the base materials for synthetic rubber, and that the industry has from 18 to 24 months to produce the supplies in large volume to offset a critical shortage in natural rubber coming then. He suggested the refiners consider catalytic plants for making butadiene from normal butane, of a

H. T. Ashton, St. Louis, Lubrite Division, Socony-Vacuum Oil Co., as informal host to visiting refiners, president at the afternoon W.P.R.A. session

Two W.P.R.A. vice-presidents: R. W. McDowell, Tulsa, Mid-Continent Petroleum Corp., and T. M. Martin, El Dorado, Ark., Lion Oil Refining Co.

minimum capacity of 2000 bbls. a day. Plants starting with crude could make 100-octane gasoline and butadiene for synthetic rubber, he said. Such plants could also make styrene, used also in making synthetic rubber, but in this product they would be competitive with the chemical manufacturing industry, Mr. Gary stated.

In suggesting that refiners consider the possibilities, even as a temporary measure, of using present facilities to manufacture butadiene for synthetic rubber, Mr. Gary said that the lack of every $1 worth of rubber for tires for motor vehicles in this country meant loss of $15 worth of petroleum supplies to the oil industry.

Urges Stocks Transfer

He said that some cracking equipment not in use in making motor gasoline under any curtailment program, might possibly be operated under high temperature conditions, to make butadiene, benzol and toluene. He suggested that refiners having the stocks suitable for such processing, but themselves lacking the equipment, make arrangements to transfer them to other plants. His office in Washington would help in making such arrangements, he said. He also suggested refiners push the sale of unleaded gasolines for tractors and make more tractor fuels, where there was a market for such product, to offset the decline in demand for motor gasoline.

Mr. Gary was asked whether a refiner, faced with the necessity for cutting down his yield of motor fuel, could get small requirements of material necessary to make changes in his plant to produce something more essential to the war program. He said, for illustration, that the requirements for 91-octane gasoline were expanding and that any refiner who could make this product, with a small change in his plant, should consider the matter carefully, and submit a proposal to the OPC.

Mr. Gary said the demand for lubricating oils was increasing and that any refiner with a lube oil plant should study means to increase his output.

Fayette B. Dow, W.P.R.A. Washington counsel, and R. R. Irwin, Kansas City, White Eagle Division, Socony-Vacuum Oil Co.

Henderson Address Opens Convention

In opening the one-day annual meeting of the Western Petroleum Refiners Assn., President Henderson outlined some of the problems refiners face today.

"First and foremost problem is to supply the 100-octane gasoline, toluene, lubricating oils and raw materials for synthetic rubber. Most pressing at present is the supply of 100 octane gasoline," he said.

Pooling both of equipment and supplies of oil companies might be necessary to meet the burdens placed on transportation facilities, he said. "In connection with this, branded names as heretofore known will be of less importance."

Absorption of technically trained men from the industry into the armed forces will require careful scrutiny by plant management in order to prevent a disruption in oil company operations, Mr. Henderson pointed out. Companies should plan now to train men to replace those called into service.

He said the oil companies in the war emergency were performing the work of the advisory committees and of the Petroleum Industry War Council under the assurance of Petroleum Co-ordinator Ickes that the control he was exercising would be limited to the war emergency and that the emergency activities would not change the competitive position of individual units.

"We cheerfully yield to governmental interference with the most intimate relations of private, professional and commercial life, if necessary," he said, "but this should be conceded with the understanding that these are temporary war powers and not precedents for the invasion of liberty after victory is won and peace returns."

Dow Speaks Off-Record

Speakers at the afternoon W. P. R. A. session were Fayette B. Dow, Washington counsel of the W. P. R. A. and advisor on oil transportation to Office of Defense Transportation, and B. L. Majewski, chairman of the District 2 marketing committee. Mr. Dow outlined the setup and duties of the Washington agencies handling the transportation of oil products, speaking off the record. Mr. Majewski, in addition to bringing the message from Washington of the necessity for refiners to adjust their product yields, discussed at length the program set up in the OPC to relieve the fuel oil shortage in the East Coast territory. (For details on this program see page 21.)

Ethyl Cuts Lead Price

NEW YORK—Ethyl Gasoline Corp. has notified licensees that it will reduce tetraethyl lead price from 0.20c to 0.18c, effective April 1. Last reduction in "lead" prices was April 1, 1941, when price was cut from 0.23c to 0.20c.

Loath to leave the hall at the end of the W.P.R.A. session. At the left, Rex H. Winget, Cushing, Okla., Cushing Refining & Gasoline Co., is in serious discussion with J. W. Warner, Tulsa, Tide Water, C. L. Mayhall, Oklahoma City, Anderson-Prichard Oil Corp., comments in lighter vein to H. W. Camp, Tulsa, Cities Service, and F. L. Martin, Tulsa, Sunray Oil Co.

PRODUCTION NEWS...

Pennsylvania Crude Price Hiked 25c a Bbl. by OPA

NPN News Bureau

WASHINGTON — To meet war-time demands for Pennsylvania grade crudes, a hike of 25c per bbl., effective March 25, was announced on this date as having approval of Office of Price Administration. This is amendment 3 to OPA Price Schedule 88.

Moreover, "a second advance of like amount also has been assured when production reaches 85,000 bbls. per day average over a three-months' period", says OPA.

Current daily production is averaging 77,000 bbls., OPA says, but an estimate from U. S. Tariff Commission puts it at 79,000 bbls.

Plan Higher Output

In its statement of considerations, OPA said Pennsylvania Grade Crude Oil Assn. prepared estimates on number of wells to be drilled and production expected under 2 plans, "Program I and Program II". It was estimated by this association that "production can be increased some 8000 to 10,000 bbls. by the middle of 1943 under Program II. It is estimated that Program II will require an expenditure of roughly $15,000,000 annually for the next three years on repressuring, reconditioning and drilling of new wells."

To accomplish aim of Program II, OPA explained, it is necessary to approve a price hike to compensate producers to drill and banks to loan capital.

Rated capacity of refineries equipped to run Pennsylvania grade crude is 90,000 bbls. daily. OPA said this was according to information submitted, and "indicates an average sustained working capacity of at least 85,000 bbls. per day".

OPC Urged Price Hike

In a letter to OPA from Office of Petroleum Co-ordinator's Director of Production, it was "urged that price controls on Pennsylvania grade crude petroleum be removed", OPA said.

Moreover, OPC's production director is reported by OPA to have "indicated that the supply of such lubricating oils has given that office serious concern".

OPC's refining division recommended "that all necessary steps be taken to increase the production of Pennsylvania grade crude petroleum as much as possible, consistent with conservation measures to assure the life of the field".

In announcing its decision to hike Pennsylvania grade crudes 25c per bbl., OPA revoked its revised price schedule No. 22, setting prices on these grade crudes. (*NPN Aug.* 27, 1941, *p.* 7).

(After Congress passed the Price Control Act of 1942, all of OPA's price schedules were reprinted, and henceforth became known as "revised" price schedules, which explains use of this term—Ed).

New Prices Listed

Following are the new maximum prices as set by Amendment 3:

Grades of crude oil	Previous Max. per bbl.	New Max. per bbl.
Pennsylvania Bradford	$2.75	$3.00
Southwest Pennsylvania	2.40	2.65
Eureka	2.34	2.59
Southeastern Ohio	2.30	2.55
Oil City—Titusville:		
Group A	2.68	2.93
Group B	2.67	2.92
Group C	2.66	2.91
Group D	2.65	2.90
Group E	2.63	2.88

Group A includes Cochran, Franklin, Hamilton and Doolittle districts; Group B covers the Titusville district; Group C includes Turkey and Tidiout; Group D includes Bear Creek and Porkey districts; and Group E includes Eldeneau, Bowl Creek, Rough Run, Carbon, Ditner, Bredin, McJunkin, Jameson, Kennerdall, Emlenton, Tiona, Lacy, and Kinzua districts.

OPA explained that crude runs have been maintained above 80,000 bbls. daily only by means of continual withdrawals from stocks, now approaching a working minimum. "If an improvement in the production rate could be anticipated in the next few months, crude runs could be maintained by further withdrawals from stocks in the interim, and the stocks could be replenished later out of the increased production."

Louisiana Sets Allowable

Special to NPN

BATON ROUGE, La.—Louisiana's April production allowable, including "condensate, distillate and natural gasoline," is set at 321,466 bbls. daily by order of Department of Conservation. Of this total, south Louisiana fields are allocated 246,995 bbls. daily; north Louisiana, 74,471 bbls. daily.

Recommendation of 313,000 bbls. daily in April was made by Office of Petroleum Coordinator (*NPN March* 25, *p.* 21).

Texas Orders Most Oil Wells Shut Down 18 Days in April

Special to NPN

AUSTIN—For the first time in history, the majority of the vast Texas oil fields will be idle more days out of the month than they operate.

The April proration order issued by the Texas Railroad Commission calls for 18 shutdown days for all but those few fields producing aviation gasoline.

Commissioner Jerry Sadler estimated that Texas will produce less crude in April than at any time in history.

The drastically-curtailed order will allow a production of 1,132,512 bbls. of crude and condensate daily. Condensate and natural gasoline, lumped for the first time in with crude, amounts roughly to 40,000 bbls. daily, Chairman Ernest O. Thompson estimated.

"But the answer lies in transportation," Mr. Thompson said. "We must get a pipeline from Texas to the East. I do hope we can get relief in May. Operators want to produce the oil. Purchasers want to buy it."

He joined Commissioner Sadler in urging that some of the parallel inland pipelines to New Mexico and West Texas be dug up and the pipe used for the East coast line.

Transport Snag Cited

"Some operators do not realize the full extent of the tanker shortage," he stated. "If all the railroad tank cars were used to carry Texas oil, we could move only 435,000 bbls. a day, against a production of over 1,000,000."

Ironically, in time of war when battles are being won or lost due to oil, some Texas wells will be producing only an hour or so each month. Some of the larger wells are able to make their daily allowables in a few minutes, even when choked down. Those that can do it in five minutes could make their entire month's allowable (12 days) in 60 minutes.

Protests over the Commission's order began to come in soon after it was issued.

W. T. Knight of Wichita Falls wired that "this is a squeeze play on the part of the major companies. All that we independents ask is fair play. We know that this reduction will prove our destruction."

Mr. Knight recalled that Coordinator Ickes had urged development of new oil fields. "How can we drill oil wells on 12 days production?" Knight asked. "I am wiring Mr. Ickes to this effect."

The commission's order followed closely Mr. Ickes recommendation of 1,134,000 bbls. daily for Texas.

J. A. McCarty, president of the North Texas Oil and Gas Association, said:

"All purchasers in this district are unanimous in wanting more oil here and can run on a 30-day basis without any shutdown days because they have the facilities to move the oil into areas where it is needed.

"Since oil from here does not have to move into the Gulf Coast bottleneck, we think it very important that production from this district be continued on a 30-day basis as a matter of helping supply the national demand."

Small Operators Hit

Even before the order was issued, Chairman Thompson had expressed his fear that April would sound the death knell of many small Texas operators.

"A small operator is in business by a very little margin of profit," he said. "He can no more stay in business by working only 12 days out of the month than a small grocer could."

Fields designated as aviation-gas producers will be closed only 9 days—April 4, 5, 11, 12, 18, 19, 26, 29 and 30. The fields are Lolita, West Ranch, Heyder, New Refugio, Tom O'Connor, Amelia, Conroe, Cotton Lake, South Cotton Lake, Webster, Hastings, Lovell's Lake, Raccoon Bend, Raccoon Bend Cockfield, Turtle Bay, Plymouth, Reynolds, Wade City, Turkey Creek, Orange Grove, O'Hearn, Conoco-Driscoll, Odem and Yates.

The 18 general shutdown days were designated as April 3, 4, 5, 6, 10, 11, 12, 13, 17, 18, 19, 20, 24, 25, 26, 28, 29 and 30.

Proration Power Upheld in Texas

Special to NPN

AUSTIN—Two state courts have upheld the broad powers of the Texas Railroad Commission in prorating oil production and drilling regulations.

One was the important Conoco-Driscoll suit involving right of the Commission to issue proration orders based on statewide demand rather than demand by individual fields. This power was upheld when the Texas Supreme Court refused to grant Continental's request for a writ of error from the opinion of the Court of Civil Appeals in Beaumont, which had upheld the commission. The Supreme Court, in effect, upheld the lower court.

The Continental case had been watched closely by oil circles, for the method of proration has been a bone of contention that has created dissension within the oil industry itself.

Commission Again Upheld

In the other case, the Court of Civil Appeals here upheld the commission on an order prorating the McElroy field in Crane and Upton counties, which had been attacked by Gulf.

In this case 3 fields had been consolidated by the commission, so far as proration was concerned. They were the Gulf McElroy, McClintic and Church field areas. Gulf had drilled its property less densely than the other two areas, and claimed that it should have a greater allowable because of its greater reservoir acreage.

The Civil Appeals Court, however, rejected this and held that Gulf had had equal opportunity with other operators to develop its properties, and its failure to do so did not entitle it to a greater allowable. A district court injunction against the commission was ordered dissolved.

Tariff Commission Queries More Crude Producers

WASHINGTON—In order to obtain cost data from an additional 10,000 to 12,000 crude producers, U. S. Tariff Commission, on March 26, mailed approximately this number of "simplified cost study production questionnaires."

It's expected that this questionnaire will make is easier for smaller oil companies and producers to supply available data. Tariff Commission explains in its accompanying letter:

> "The information is desired by leases or properties, but if you cannot separate your records in that manner, then report either by field or pool. In case the property is owned jointly with others, report only your share of production, income, and expenses. Each joint owner should make a separate report for his interest."

Last December, about 5000 questionnaires were mailed, and to date, about 2000 replies have been received.

The information obtained is to be used by Office of Price Administration in establishing price schedules. (*See NPN Dec. 10, 1941, p. 14 for details—Ed.*)

Known Reserves Up In '41, A.P.I. Says

NPN News Bureau

NEW YORK—Known underground petroleum reserves on Jan. 1, 1942, were 465,781,000 bbls. more than the known 19,595,296,000 bbls. on the same date in 1941, according to report issued March 25 by American Petroleum Institute's committee on petroleum reserves. During 1941, petroleum industry found 1,968,963,000 bbls. of new oil, or 564,781,000 bbls. more than the 1,404,182,000 bbls. of crude produced during the year, report stated.

Most of the new oil was added through upward revisions of reserves in fields found prior to 1941. Further development of older fields revealed a net addition of 1,538,989,000 bbls. of crude which had not been included in previous estimates for those fields because of incomplete development, according to the report.

Future needs demand that reserves be great enough to allow increases in production without waste which would follow any prolonged production at greater than the optimum rate, report continued. Despite large reserves, the industry must continue drilling new exploratory wells to find new oil fields. Declining rate of discovery in the last four years combined with probable increase in demand to supply war needs makes this drilling program even more imperative now.

Committee's estimate included only reserves in known and proved fields and recoverable by present production methods.

State Oil Chiefs To Meet with OPC

WASHINGTON — When first meeting of National Conference of Petroleum Regulatory Authorities is held here April 14 with officials of Office of Petroleum Co-ordinator, transportation and refining problems are slated for discussion as well as production, an OPC official said today.

OPC's monthly recommended allowables, refinery changes in District 1 for period March 27 to April 30 and possible revisions of Conservation Order M-68, unofficially are on agenda, it was said.

Representatives slated to attend April 14 meeting are:

Colorado—Warwick M. Downing, Denver, chairman of Gas Conservation Commission; **Illinois**—Robert M. Medill, Springfield, director of Department of Mines & Minerals; **Indiana**—Prof. Ralph Esarey, Indianapolis, Department of Conservation; **Kansas** — Andrew F. Schoeppel, Topeka, chairman of Kansas Corporation Commission; **Louisiana**—Joseph McHugh, Baton Rouge, commissioner of Department of Conservation; **Mississippi** — Hugh M. Morse, Jackson, state oil and gas supervisor, State Oil and Gas Board; **Michigan**—P. G. Hoffmaster, Lansing, supervisor of wells for Department of Conservation; **New Mexico**—John M. Kelly, Santa Fe, Oil Conservation Commission; **New York** — Lithgow Osborne, Albany, commissioner of Conservation Department of State of New York; **Oklahoma**—Redford Bond, Oklahoma City, chairman of Corporation Commission; **Pennsylvania**—Parker L. Melvin, Bradford; **Texas**—Jerry Sadler, Austin, Texas Railroad Commission; **Wyoming** — Warren D. Skelton, Casper, State Mineral Supervisor; **West Virginia**—Gov. Matthew M. Neely; **California**—Reed D. Bush, San Francisco, Division of Oil and Gas.

Name of Montana's representative was not available.

WPB Moves to Release 'Frozen' Scrap Metal

NPN News Bureau

WASHINGTON — War Production Board will make an effort to free scrap metal held by oil companies and other industrial concerns which cannot be removed and sent to war factories because of financial, legal, or other "special" obstacles.

WPB's Bureau of Industrial Conservation has organized a special projects salvage section which will open field offices across the country to expedite the movement of scrap metal which is tied up by uncertain ownership, clouded titles, high cost of demolition, remote location, or other obstacles.

Abandoned oil wells were listed in this category.

Field offices will be opened in New York, Boston, Pittsburgh, Buffalo, Dallas, Philadelphia, Baltimore, Cincinnati, Butte, Cleveland, Detroit, Chicago, Atlanta, Memphis, Seattle, Salt Lake, San Francisco, Los Angeles, Denver, St. Louis, and Minneapolis.

Canada Oil Production Up

Special to NPN

OTTAWA — Crude petroleum production in Canada for 1941 was 10,123,532 bbls. as compared with 8,718,053 bbls. in 1940.

Canadian crude petroleum imports for January, 1942, were 88,900,000 gals., against 126,300,000 gals. in December.

Ratner Hits Rules Governing Spacing

Special to NPN

LITTLE ROCK, Ark.—"A paradox of scarcity in the midst of plenty today presents a critical problem to the oil industry of America as it attempts to help our country's war effort," Gov. Payne Ratner of Kansas told Interstate Oil Compact Commission at its spring meeting here March 25.

He said official announcements have been made of serious shortage of fuel oil and orders for gasoline curtailment given in certain seaboard areas while at the same time Office of Petroleum Co-ordinator has reduced daily crude oil production allowables "in Kansas and other Mid-Continent states." He declared some phases of 40-acre oil well spacing and 640-acre gas well spacing "are to a large extent preventing new development." Elimination of depletion allowance, if adopted, would be "a further blow severely crippling new development," he said.

"If these drastic curtailment programs continue," the Kansas governor added, "we may approach the time when there will be an urgent military and civilian need for oil products, and the industry will be unable to supply them. We must not be in the position of 'too little and too late.'"

Oil TRANSPORTATION

All Types of Carriers Join In Mid-West Transport Plan

NPN News Bureau

CHICAGO—Magnitude of the task the oil industry faces in reshuffling its transportation facilities to meet shortages in tanker-dependent areas is apparent in a plan drawn up by District 2 and approved March 24 by Office of Petroleum Co-ordinator.

This plan, worked out pursuant to amendments to OPC Recommendation No. 33, is the first over-all plan to be disclosed. Other broad plans—for the remaining four districts—are in the making.

Devised on the basic principle that fullest use of all transportation facilities in District 2 will release barges, tank cars and trucks for hauls into District 1, the plan has blanket application to all oil carriers and calls for, among other things, re-routing of facilities to provide a flow of oil across the Mid-West in a general easterly and northerly direction and calls a halt to movements in westerly and southerly directions.

See District 2 Shortage

Oil men see a shortage of oil developing in the northwestern corner of District 2 as a result of diverting river barges from their normal routes up the Missouri and placing them in runs up the Ohio.

They also see the plan placing refineries in the upper portion of District 4 (Rocky Mountains) on the fense, with newly-developed demands from Washington and Oregon on one hand and from the Twin Cities area on the other.

These and other problems may appear if District 2 operators — refiners, transporters and sellers of petroleum and products—adhere 100% to the plan, as directed by OPC.

General Chairman Frank Phillips of District 2 submitted the plan to Deputy Petroleum Co-ordinator Davies along with a letter on March 24.

"Your early direction effectuating said plan will make available muchly needed transportation facilities and supplies to District One," Mr. Phillips wrote.

His letter was answered the same day by Mr. Davies, who said that the plan had been approved by OPC's Chief Counsel and that it "complies with and appears to be adequate to accomplish the purposes of Recommendation No. 33, as amended."

Mr. Davies "directed" that "all persons affected by the said plan carry into effect the said plan according to its terms, conditions and intent."

These documents were released here in Chicago March 28.

Provisions of Plan

In brief, the plan calls upon all operators involved in District 2 to:

—**Reverse** any pipeline movements from a southerly or westerly direction to a northerly or easterly direction.

—**Install** additional pipeline facilities and provide additional pipeline capacity by looping lines, making cross-connections and increasing pumping capacities.

—**Use barges** and lake steamers for movements in an easterly direction upon the Great Lakes and the Ohio River.

—**Arrange** for customers receiving products in tank cars, particularly but not limited to asphalt, road oil, fuel oil and tar, to unload and release tank cars within 24 hours after receipt.

—**Eliminate** tank car hauls within a radius of 100 miles of refineries, water and pipeline terminals and substitute therefore hauls by trucks "irrespective of the fact that truck costs may be higher."

—**Arrange** through owners of all water, pipeline or refinery terminals for common use of tank cars at each shipping point, irrespective of ownership, in order to reduce idle time and increase efficiency of tank cars, allowing only 2 days' supply of cars at refineries and one day's supply at pipeline and water terminals handling only clean products.

—**Arrange** for common use of any idle tank truck capacity, irrespective of ownership.

—**Load and unload** tank cars and trucks on a 7-day week, 24-hour a day basis.

Employment of car tracers in railroad classification yards where such employment would speed movement of cars through such yards is also provided in the plan, with District 2 transportation committee and all operators involved sharing the expense.

Provides Oil Pooling

To handle disruption of the flow of products to consumers when operation of the plan "dries up" sources of supply in various areas and to further increase efficiency in the use of transportation facilities, the exchange, loan and sale of petroleum among District 2 operators is directed in all cases (1) where such transactions will completely eliminate or shorten the use of any oil transportation facility; (2) where movements of products or crude from District 1 into District 2 would be eliminated; (3) where movements in westerly or southerly directions will be eliminated and movements in northerly or easterly directions will be substituted therefore; (4) where substitution of pipeline hauls for truck, tank car, and barge hauls will be effected; (5) where cross-hauling will be eliminated (6) where westerly and northerly movements on the Great Lakes and westerly movements on the Ohio River and all such movements wherever possible on the Mississippi and Missouri rivers will be eliminated; (7) where supplying consumers from sources nearest the point of consumption will result, subject to the necessity of manufacturing maximum quantities of aviation gasoline, toluene and other materials required by the armed forces.

OPC Okays Emergency Plan To Rush Heavy Fuels East

NPN News Bureau

WASHINGTON — By April 30, an additional 5,000,000 bbls. of heavy fuel oil must be available in District 1 (mostly for industrial use in Northeast), Office of Petroleum Co-ordinator announced after three-day meeting with general chairman from Districts 1, 2 and 3. And to meet this wartime demand OPC has issued a "directive" aimed to accomplish following in period from March 27 to April 30:

Change yields of refineries in District 1 to produce 2,000,000 bbls. more of heavy fuel oil and less gasoline, and "acquire" for distribution stocks of heavy fuel oil now in consumers' storage facilities, in District 1, in excess of such consumers' requirements during the next 30 days.

Raise gravity of heavy fuel oil now in storage at refineries, in District 1, by adding lighter fuel oils to the heavy fuel.

Load and ship, from District 2 to District 1 by tank car, 2,000,000 bbls. of heavy fuel oil.

And in addition, ship an extra 1,000,000 bbls. of heavy fuel oil from District 3 (Gulf Coast) into District 1.

It's expected that by changing refinery yields in District 1, an additional 2,000,000 bbls. of heavy fuel will be made available between March 27 and April 30.

To Hunt Surplus

District 1's marketing committee has been ordered to locate surplus supplies in the East Coast area and to arrange for its transportation to areas where needed immediately. This is to be done as directed by District 1's subcommittee on supplies and distribution. Any refusals to co-operate are to be reported to OPC.

District 1's refining committee is to see that increased yield of No. 5 fuel oil, or heavier, is increased by at least 5% over yields of such products from these refineries during last February and to decrease percentage of motor fuel by same

(*Continued on Page* 23)

Pelley Makes Double His Bid in Moving Oil by Rail to East

Railroading was a tough business back in 1899 when John Pelley started out as a track apprentice to fight his way upward to the head of two railroads and become president of the Association of American Railroads.

Mr. Pelley reached the top because he sticks to his guns.

Throughout the East Coast "shortage" controversy of last summer and fall, he maintained the railroads could haul 200,000 bbls. of oil a day.

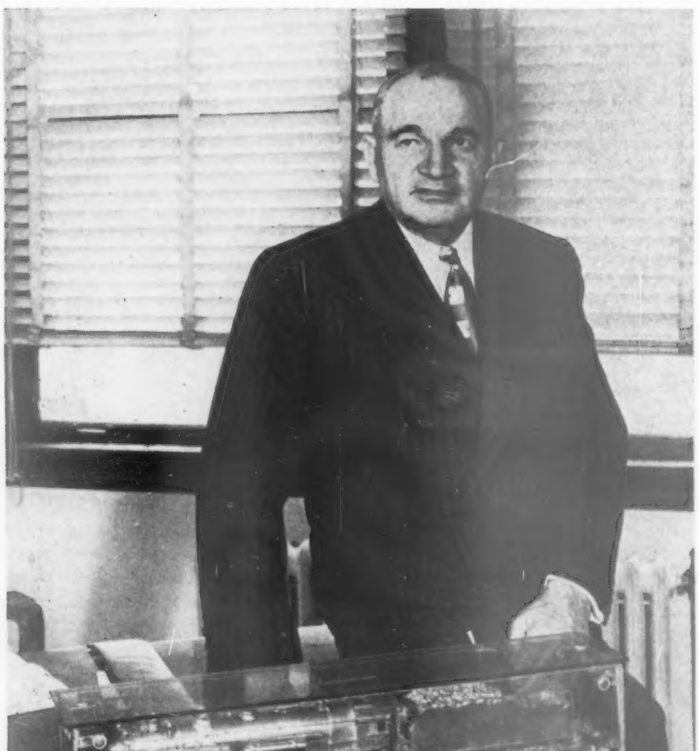
Now that there is an acute shortage in the East, the railroads (in co-operation with the oil industry) are moving 2½ times that much. The last figure reported by the Office of Petroleum Co-ordinator was 464,561 bbls. daily.

Mr. Pelley is hesitant now to estimate just how high rail movement will go, because it has gone so much farther than anyone thought it would.

May Reach 500,000 Barrels Daily

However, he said, the "slack" has not all been taken up, and the 464,561 figure probably will be exceeded. Movements may go as high as 500,000 a day, he added cautiously.

The limiting factor, in Mr. Pelley's belief, is locomotive power, rather than cars, because the railroads still have to haul troops, munitions, food, clothing and other essentials of a nation at war.



John Pelley

"But I don't know of anything more essential than oil," he said.

The railroads are in no position to handle all of the traffic that would be thrown upon them if trucks and buses are driven off the highways by the rubber shorage, he said.

Worked His Way to Top

Mr. Pelley, born in the small Illinois town of Anna, had just turned 22 when he went to work for the Illinois Central. Twenty-four years later, he was vice-president in charge of operations, rising to that post after being, consecutively, assistant foreman of the extra gang, foreman, general foreman, supervisor of the Peoria District and the Memphis Division, roadmaster, superintendent, general superintendent of both the northern and southern lines, general manager, and, finally, vice president.

In 1926, he became president of the Central of Georgia Railway, and in 1929, he was named president of the New York, New Haven and Hartford Railroad.

Since 1934, he has been president of the A. A. R.

Mr. Pelley likes to play golf, but he has only "one real hobby"—a 2½ year old grandson in Ottawa, Canada.

"He's just big enough to talk on the phone a little," Mr. Pelley said with a twinkle in his eye.

Locked Horns With Ickes

Mr. Pelley was a prominent figure in the oil news of last summer and fall, charging directly into the foreground of the picture with the claim that there were at least 20,000 tank cars to haul a minimum of 200,000 bbls. of oil each day into the East Coast area.

A spirited controversy arose between him and Petroleum Co-ordinator Ickes, the latter contending that Mr. Pelley did not know what he was talking about.

Shortly after the last open flare-up between the two, which occurred when Mr. Ickes appeared before the Maloney Investigating Committee at resumption of hearings early in October, the Co-ordinator announced that the British were returning the borrowed tankers, and called off the curtailment measures.

The shortage returned after war between the U. S. and Japan. This time, the railroads really started moving large quantities of oil into the Eastern industrial area.

All Pulling Together Now

Appearing before the Cole Oil Investigating Subcommittee, Mr. Ickes apologizing, in effect, to Mr. Pelley, said he was amazed at the railroads' record and that he had doubted their ability to move large amounts of oil to the East.

As for Mr. Pelley, he said the oil industry, OPC and the railroads have but one job to do—win the war—and are working in close co-operation.

"It would be impossible to have smoother handling," he said.

amount. Moreover, no No. 5 fuel oil, or heavier, is to be less than 14° A.P.I. gravity at 60° F.

If any refiner can prove that it is impossible for him to do this, or that by doing it military production will be hindered, he may appeal to OPC's refining director in Washington.

Reports Required

Every refiner in District 1 is to file with OPC a telegraphic report "stating the estimated increased quantity, in barrels per day, of heavy fuel oil which will be produced" from March 27 to April 20.

District 2's Supply and Distribution Committee is to arrange for refiners in this district to make available for shipment 1,000,000 bbls. from March 27 to April 5 and another 1,000,000 bbls. from April 6 to April 22. Moreover, this committee is to arrange to have this fuel oil "purchased by an appropriate refiner or marketer in District One".

District 2's transportation committee is to arrange for sufficient tank cars to move this fuel oil.

District 3's refining committee is to see that arrangements are made for shipments of 1,000,000 bbls. of heavy fuel oil to District 1.

OPC to Ask Price Hike

So that OPC "may make appropriate representations to the Office of Price Administration for proper adjustments in price ceilings which will enable refiners to continue to operate in accordance with the requirements of this directive," each refiner operating pursuant to its requirements shall file, through its appropriate District General Committee, following:

"The increase in volume of heavy fuel oil produced and made available.

"The decrease in the volume of motor fuel or fuel oils of No. 4 grade or lighter.

"The average increase in A.P.I. gravity of heavy fuel oil produced and made available in or to District One.

"The total quantity of heavy fuel oil produced in or shipped into District One.

"Such other information as will show increase in fuel oil costs resulting from the operation of this directive."

Additional steps which oil industry will take are:

To stop short hauling by tank car over distances of less than 100 miles.

To load and unload tank cars on a 7-days-a-week basis.

To load, unload and operate trucks on a 24-hours-a-day basis.

To institute common use of tank cars at refinery and terminal loading points.

This "directive" was authorized and approved by OPC's chief counsel pursuant to provisions in Recommendation No. 33 and its two amendments, dated March 4 and March 26.

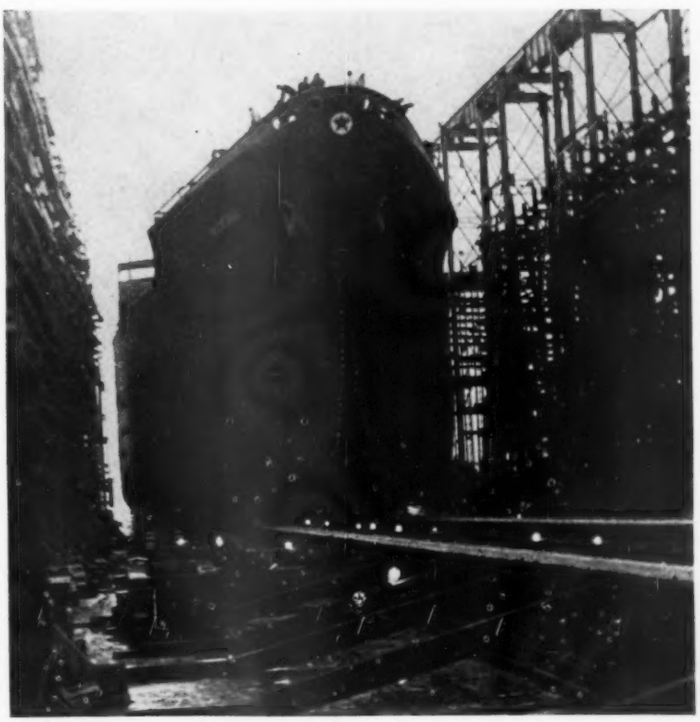
The following participated in the joint meeting:

Burt R. Bay, Northern Natural Gas Co., Omaha, Neb.; Paul G. Blazer, Ashland Oil & Refining Co., Ashland, Ky.; W. R. Boyd, Jr., Petroleum Industry War Council, Washington, D. C.; John A. Brown, Socony-Vacuum Oil Co., New York, N. Y.; J. W. Carnes, Consolidated Oil Corp., New York, N. Y.; R. H. Colley, Atlantic Refining Co., Philadelphia, Pa.; S. P. Coleman, Standard Oil Co. of New Jersey, New York, N. Y.; J. W. Connolly, Standard Oil Co. of New Jersey, New York, N. Y.; O. D. Donnell, Ohio Oil Co., Findlay, Ohio; S. B. Eckert, Sun Oil Co., Philadelphia, Pa.; B. I. Graves, Tide Water Associated Oil Co., New York, N. Y.; Walter S. Hallanan, Plymouth Oil Co., Charleston, W. Va.; A. H. Hand, Petroleum Industry War Council, Washington, D. C., George A. Hill, Houston Oil Co. of Texas, Houston, Texas; Roy B. Jones, Pan Handle Producing and Refining Co., Wichita Falls, Texas; W. A. Jones, Cities Service Oil Co., New York, N. Y.; B. L. Majewski, Deep Rock Oil Co., Chicago, Ill.; B. C. Graves, Union Tank Car Co., Chicago, Ill.; N. C. McGowen, United Gas Pipe Line Co., Shreveport, La.; C. R. Musgrave, Phillips Petroleum Co., Bartlesville, Okla.; Frank Phillips, Phillips Petroleum Co., Bartlesville, Okla.; John W. Newton, Magnolia Petroleum Co., Beaumont, Texas; Brig. General W. B. Pyron, Office of the Secretary of War; J. French Robinson, East Ohio Gas Co., Cleveland, Ohio; Charles F. Roeser, Roeser & Pendleton, Fort Worth, Texas; H. C. Wiess, Humble Oil and Refining Co., Houston, Texas; and R. E. Wilson, Pan American Petroleum and Transport Co., New York, N. Y.

Present also during the deliberations were:

Otis McClintock, Liaison Officer, War Production Board, and Brewster Jennings, Maritime Commission.

Another Tanker Joins the Texaco Fleet



Third Texas Co. tanker launched since Jan. 3 this year, the "Montana" slid down the ways at Sun Shipbuilding and Dry Dock Co.'s Chester, Pa., yards on March 21. RIGHT—Mrs. Helen N. Olmsted, wife of Clarence E. Olmsted, Texaco's vice-president in charge of export, wielded the champagne bottle. Three more tankers are scheduled for delivery to Texaco in 1943

Commission Orders 56 More Tankships

NPN News Bureau

WASHINGTON—In the wake of continued submarine attacks, U. S. Maritime Commission's shipbuilding program has been pushed up again—this time for 56 more tankers.

Commission's contract for the tankers was announced March 25, only 4 days after a previous order for 26 tankers was disclosed (*NPN March 25, p. 28*).

With the addition of orders for 82 new tankers within a week's time, total number of tankers in the commission's shipbuilding program now hits an all-time high of 265. These, coupled with 48 others being built for private oil companies, means 313 tankers altogether are on "order and/or construction" in the U. S.

Entire contract for the 56 new oil carriers was awarded by the commission to The Kaiser Co., Portland, Ore. Each vessel will be 503 ft. long; have a beam of 69 ft.; and a depth of 39 ft. 3 in. The commission's previous order for 26 tankers was split up among Bethlehem Steel, Gray's Iron Works, Galveston, Tex., and the Barnes-Duluth Shipbuilding Co., Duluth, Minn.

Ask 'Natural' Rate Cut

Special to NPN

ST. LOUIS—Proposal No. 27,464 reducing rail rates for "casinghead" gasoline from Amarillo, Pampa, Meldavis, Bellco, Magic City and Shamrock, Tex., to Barnsdall, Okla., 6c per cwt. from 26c to 20c has been docketed by Southwestern Freight Bureau. New rate would represent 1.32c per gal. cut.

WASHINGTON — Conservation of gasoline and rubber by workers sharing their cars when going to and from work is being urged by Petroleum Co-ordinator Ickes.

Mr. Ickes also requested organization plans of management and workers to carry out this scheme, and suggested co-operative and group bus service.

How to become Spark Plug Se

This horizontal window streamer, 22"x 10", can be used where size of windows will not permit use of large poster.

Wake up sleepy motors with CHAMPION SPARK PLUGS

Service Headquarters!

This 2-sided hanging piece, 16" x 15", shown above, and the window poster, 18" x 31", shown below, will mark your place of business as Spark Plug Service Headquarters.

This Advertisement Will Appear During May in These National Magazines and Farm Papers

Saturday Evening Post	3,348,454	Capper's Farmer	1,211,204
Collier's	2,909,062	Successful Farming	1,229,320
Look	2,002,504	Farm Journal	2,562,926
Liberty	2,302,094	Progressive Farmer	987,599
American	2,291,104	Southern Agriculturist	977,274
Popular Mechanics	618,573	Southern Planter	302,725
Popular Science Monthly	724,572	Farm & Ranch	265,213
Country Gentleman	2,165,930	Pacific Rural Press	78,173
TOTAL CIRCULATION			23,976,727

THE PATRIOTIC NEED for extreme economy and efficiency of car operation has made Champion Spark Plugs a front line service item—one that truly qualifies as a primary need for rendering intelligent "preventive service" to your customers.

Champion has ready a bright, attractive, and compelling line of posters and promotional material which will help you to register this thought with your customers, and will give you a complete, well-rounded spark plug Service Program. This material is available through any Champion or jobber salesman—ask for it.

Furthermore, Champion's largest national and farm magazine schedule will tie-up with this theme, directly pointing out to motorists that a sluggish, sleepy motor is a wasteful and inefficient motor that has no rightful place in our wartime economy. It will specifically set forth the reasons for having all spark plugs tested, cleaned, and re-gapped at regular intervals. It will intelligently answer the question "when should spark plugs be changed?"

Your customers are more service-minded than ever before. Spark plugs and their care are a key source of engine economy and efficiency. With this display material, your Super Sales Service Unit to test and clean all makes, and with an adequate stock of Champion Spark Plugs, well displayed, you are ready to render a true preventive service—a patriotic service to every one of your customers.

THE CHAMPION SERVICE UNIT
Your best spark plug salesman. Tests and cleans all makes. A complete spark plug department in one compact unit.

IT PAYS YOU WELL TO STOCK AND SELL CHAMPIONS

Origin of Synthetic Rubber Told by New Jersey Standard

(*Continued from Page 5*)

interest, under this 1929 agreement. Like gasoline from coal, synthetic rubber is expensive to make and as long as natural rubber was available, America felt little urge to go into the manufacture of the synthetic product. Today, however, with the supply of natural rubber cut off, we wish we had synthetic plants to meet our need.

Standard has a natural incentive to develop new sources of rubber. In the first place, the raw materials for synthetic rubber come largely from oil and gas, both of which Standard owns in great volume. In the second place, if rubber for tires is not available, or is too high-priced, automobiles cease to run. In either case Standard loses money. It has been estimated that for every dollar spent on tire rubber, the petroleum industry sells about twenty dollars' worth of gasoline.

In 1930, shortly after the original trade was consummated, Standard took the first step toward introducing the hydrogenation process in the United States. It sold the basic process to a group of eighteen American oil companies. This sale gave this group complete control of the process in the United States with Standard a minority stockholder and licensee. The consideration was $750,000 plus a royalty to Standard on the use of the process until 1947. Each company was entitled to use the basic patent and all improvements invented by the other members of the group, or by other licensees anywhere in the world. Through this arrangement American refiners were enabled to obtain a yield of 100% gasoline from any crude oil, or in case of need to manufacture it from coal.

Process Used for 100-Octane

Because of the continued low price for crude oil, the main use of the process has been to produce valuable special products. Among these the most important is 100-octane gasoline, the superfuel for modern aviation engines. Both the base stock and the blending agents used for this 100-octane gasoline were originally made by the hydrogenation process, which thus became the basis for American supremacy in the field of aviation fuels. American airplane motors standardized on 100-octane fuel in advance of all other nations. The Germans had the processes, but they lacked the necessary crude oil to make the blending agent. Cheaper methods of producing 100-octane gasoline for airplane motors have now been developed, but at the outbreak of the war the largest plant in the world for making 100-octane gasoline was the hydrogenation plant of the Standard Oil Company of Louisiana at Baton Rouge. Some of the new, cheaper methods of producing 100-octane gasoline, also use processes obtained by Standard in the 1929 trade.

For use outside the United States and Germany, Standard, in 1931, sold a half interest in the hydrogenation process to the Royal Dutch Shell Company. The British Government, even at that early date, was anxious to encourage the production of gasoline in England from coal and coal tar. It promptly began the manufacture of gasoline from coal, utilizing the hydrogenation process (with the assistance of Standard) and subsidizing the operation at the rate of 14 cents per gallon. When the war broke out this enterprise had built its production in England up to 700,000 barrels of gasoline a year, a military asset of no mean proportions.

Stimulated by the British example, France also negotiated contracts with Standard and Royal Dutch Shell, for the erection of hydrogenation plants in France for the emergency production of gasoline. Political difficulties blocked the execution of this plan but, later, just before the war broke out, France entered into a new agreement with Standard's French subsidiary and another French company, for the production of high-grade aviation fuel by a process called hydroforming. This process had also been developed by Standard and other American companies from basic technique and patents, which were originally obtained by Standard in 1929.

Japan also negotiated over several years for licenses under the hydrogenation processes but no agreement was ever concluded. During these negotiations Standard conferred repeatedly with the American Department of State whose guidance the company sought and followed.

In 1939, at the request of the Ordnance Department of the United States Army, Standard undertook to manufacture toluol, the basis of TNT, from oil products. Normally, toluol in this country, as well as elsewhere, is a by-product from the coking of coal. The total production in the United States has been about 30,000,000 gallons a year, wholly inadequate for military requirements. Using the hydroformer process which it had acquired from the Germans in 1929 Standard was able to produce toluol from petroleum satisfactory to the Ordnance Department. Negotiations began for the immediate erection for the government of a synthetic toluol plant. This plant was completed last fall by the Humble Oil and Refining Company which operates it. Its minimum capacity is 30,000,000 gallons per year. So far as we know this is the only synthetic toluol plant in the world. Many other plants using the same process under license from Standard are now under construction in the United States and most of the toluol for our armed forces will be produced by this method.

Got Fluid Catalyst Process

Another process important to the war effort which developed out of the 1929 purchase is a special type of catalytic cracking called the "fluid catalyst process". The earlier cracking processes accomplished the molecular transformation of the crude oil through heat and pressure. Catalytic cracking accomplishes a more efficient transformation by carrying out the cracking operation in the presence of an appropriate catalyst.

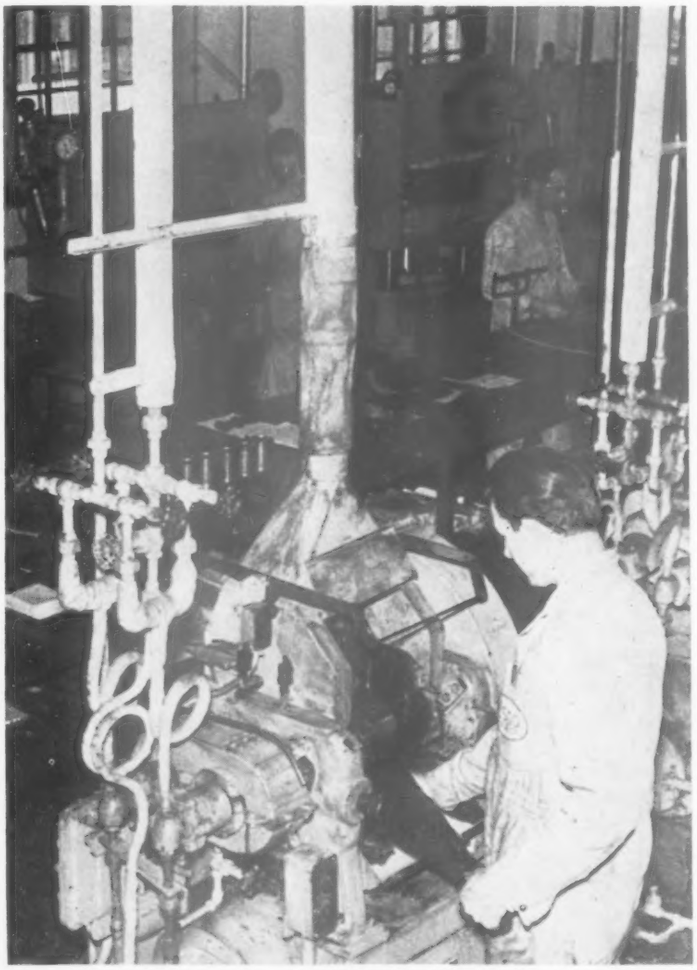
The improved fluid catalyst process was developed by Standard between 1937 and 1940 in association with a number of other American companies and with a Dutch Company and the British Government-controlled Anglo-Iranian Oil Company, starting with catalyst technique acquired under the 1929 agreement. Among the corporations associated with Standard in this development were the M. W. Kellogg Company, the Standard Oil Company of Indiana, the Texas Company, the Royal Dutch Shell, and Universal Oil Products Company, in addition to the Anglo-Iranian Oil Company.

The fluid catalyst process is of enormous military value. More than $100,000,000 is being invested in fluid catalyst plants, financed in part by the government, on account of their utility in the war effort.

Among the chemical processes utilizing oil as raw material, in which Standard acquired a minority interest in the 1929 trade, was one for making a synthetic rubber which came to be known as "Buna". At that time the I. G. had already done some work on this process, using acetylene made from coal and limestone to produce butadiene, which is the principal constituent of this synthetic rubber. It was recognized that oil and gas might form a cheaper raw material than coal, and to the extent they were used, Standard would have a minority interest in the Buna process.

Further work on the Buna

Testing Quality of Synthetic Rubber



Butyl rubber is compounded and cured to control its quality, then studied in a testing laboratory to determine its application as substitute for natural rubber

The Best Defense Against *Tanks*

Tanks are almost impregnable till they meet these U. S. 37 mm Anti-Tank Guns and the new 75 mm "Tank Destroyers"—mobile, fast-firing guns that hurl armor-piercing projectiles with deadly accuracy.

The Best Defense Against *Waste*

In these days, when waste of your product is a waste of defense effort, when you safeguard your drums you help safeguard America.

And just as there is a *best* defense against tanks, there is a *best* defense against *waste*. That defense—an impregnable defense against pilferage, leakage and other losses—is provided by Tri-Sure Closures. The Tri-Sure seal prevents tampering, because it cannot be removed unless deliberately destroyed. The Tri-Sure plug prevents leakage, because it is held tightly in place. The Tri-Sure flange assures complete drainage, because it is flush with the inside of the drumhead.

Take the first step now to make every drum a fortress for your product — to make every shipment safe. Write for complete information about Tri-Sure Closures.

Tri-Sure
Reg. U. S. Pat. Off.
CLOSURES

AMERICAN FLANGE & MANUFACTURING CO. INC., 30 ROCKEFELLER PLAZA, NEW YORK, N. Y.

Explains Origin of Process For Making Synthetic Rubber

(*Continued from Page* 26)

development was carried on through the ensuing years, both by Standard and the I.G. Standard's research naturally was confined to the production of butadiene from oil and gas. Between 1931 and 1939 more than $2,000,000 were expended in the United States in this research. No method was developed, however, by which it was possible to produce butadiene at a cost low enough to justify commercial production of Buna in competition with natural rubber in the United States. Natural rubber was available at an average price of less than 15 cents a pound, whereas none of the methods tested promised to yield Buna rubber on a commercial scale at a cost less than 30 cents per pound. Nor was the product itself satisfactory. Under an agreement with the General Tire and Rubber Company they experimented with several tons of the Buna brought from Germany in 1934, and reported that it was not suited for practical use.

The I.G., after large expenditures in Germany in research on Buna rubber, advised Standard in 1935 that it was financially unable to carry on further attempts to solve this problem. Thereupon the German Government financed continued research. At the outbreak of the war one large commercial synthetic rubber plant was reported in operation in Germany, using coal as a raw material, with a rated annual capacity of 25,000 tons. The costs were still estimated to be two or three times as high as the prevailing cost of natural rubber. Germany's peace-time consumption was about 75,000 tons. Her war-time consumption is generally estimated at several times this amount. The actual status of synthetic rubber manufacture in Germany at the outbreak of the war, therefore, after several years of government subsidized development, was a producing capacity equal to perhaps ten per cent of war-time requirements.

Developed Other Rubber

During this period, however, I.G. continued its own research on another form of synthetic rubber and was producing from coal a type suitable for special uses, other than tires, which it called "Perbunan". During 1938, I.G. sent to the United States, through its American sales agency, small quantities of Perbunan. It was sold at $.90 to $1.20 per pound, although natural rubber was selling for about 15 cents per pound.

At the same time, I.G. advised Standard that the government-sponsored process for making Buna tire-rubber had advanced far enough in Germany to make it possible that it would have commercial promise in the American market. Although its cost was still more than that of natural rubber, it might compete successfully because of the superior wearing qualities which were claimed for tire treads made from this synthetic product. In December 1938, Standard arranged for the importation of large samples of the improved Buna for five of the largest American rubber companies. With the samples, I.G. sent an expert to assist the American companies in making tires for test purposes. These tests were still under way at the outbreak of the European War. In other words, as late as 1939 the Germans made a definite effort to interest the leading American rubber companies in Buna for manufacturing tire in the United States.

But the American rubber companies were not convinced that the product was commercially feasible for tires. Apart from differences of opinion as to quality, the principal obstacle was the admittedly high cost of Buna rubber.

High Cost Was Barrier

The facts are that the real barrier to the production of synthetic tire rubber in the United States—until the outbreak of war in the Pacific shut off all imports from the Orient—has always been this item of high cost. No one has ever been able to produce synthetic rubber as cheaply as natural rubber. Therefore, so long as natural rubber was available in a free market, synthetic rubber was at a competitive disadvantage. This competitive disadvantage is the reason—and the only reason—why the United States did not have any capacity for the commercial manufacture of synthetic tire rubber before Pearl Harbor.

During the last four years, Standard has developed a new type of synthetic rubber, called Butyl. The first commercial production of Butyl is scheduled to start at the end of 1942 in a plant built at Baton Rouge by the Standard Oil Company of Louisiana. The process for making Butyl rubber came within the 1929 trade; consequently, the I.G. was entitled to a minority interest in the process. So far Butyl is less satisfactory for tires than Buna, but it is entirely reasonable to hope that its properties as tire-rubber can be improved with further experience. A low speed, light duty tire can already be made from it. It has the material advantage of a lower production cost than Buna. The capital required for initial investment is less, the raw material cost lower, and smaller quantities of steel and other essential materials are required for plant equipment.

With the outbreak of the war in September 1939, Standard decided to acquire for itself from I.G. the complete ownership of the Buna rubber process in the United States. The elimination of the German control was accomplished through an exchange of Standard's interest in the Buna rubber process throughout the rest of the world, for the controlling interest of the I.G. in the same process within the United States, and the French and British empires.

Having obtained complete control of Buna rubber in the United States, Standard undertook immediate production for specialty purposes. By January 1940 it had completed plans for a small initial plant, with a capacity of about 1000 tons per year at an estimated investment of $671,000.

At this time also, pursuant to the suggestion of the Army and Navy Munitions Board, from whom it had sought advice, Standard developed a tentative plan for a joint company, to be owned by the American rubber industry in association with Standard, for a joint development of Buna rubber in the United States. Any cooperative plan appeared to Standard's attorneys to be questionable under the anti-trust laws, and the proposal was dropped.

On June 14, 1940, Mr. W. S. Farish, President of Standard, appearing before the Senate Military Affairs Committee, directed the attention of the committee to this legal barrier to voluntary co-operation in the production of synthetic rubber and also suggested congressional action to create a domestic synthetic tire rubber industry.

Offered Buna To Others

In view of the legal difficulties in the way of direct co-operative action, Standard offered licenses under the Buna patents to the rubber companies. Two of the largest companies accepted licenses, but the other two were unwilling to do so because they felt, first, that they were in a position to develop a synthetic rubber of their own and, second that the terms of the licenses proposed by Standard were not satisfactory.

In the summer of 1940, the government authorities took action recognizing the fact that the government itself had to take the responsibility for commercial production of tire rubber. Thereupon, at the request of the Advisory Commission of the Council for National Defense, Standard, at its own expense prepared engineering plans for a 30,000 ton butadiene plant for synthetic rubber. Nothing came of this plan and in December, Standard worked out, in co-operation with several other companies, and the Reconstruction Finance Corporation the first tentative proposal for the production of 40,000 tons of synthetic rubber under government subsidy in the United States.

After considerable revision this plan assumed final form in 1941, and in July Standard entered into a definite contract for the erection of a plant to produce from oil about one third of the butadiene required as a raw material for this 40,000 tons of Buna rubber to be made by the four large rubber companies under this governmental synthetic rubber program. Concurrently with the development of the government-sponsored program, Standard, on its own account and with its own funds, committed itself to a total expenditure of $12,000,000 for the production of special types of synthetic rubbers and raw materials. At the outbreak of the war with Japan, Standard had completed plants and plants under construction with a capacity of 20,000 tons annually of synthetic rubber and raw materials all privately financed. At the moment, it appears that much of this specialty rubber production financed by Standard will have to be devoted to war purposes, and some of it has already gone into experimental tires for military use.

Since the outbreak of the war in the Pacific, Standard has assumed an obligation to the Rubber Reserve Company and to the corresponding Canadian company to produce a substantial proportion of their total requirements of synthetic rubbers and raw materials. All of Standard's production, and most of that of the other companies, will be carried on under processes developed by Standard, or acquired by it under the 1929 agreement.

There has been no controversy concerning patents or licenses from Standard to the government for its own synthetic rubber program, or for plants operated by others for the government. It has been understood ever since the first tentative program was worked out by the Reconstruction Finance Corporation, in December 1940, that the Rubber Reserve Company would contract for the production of Buna rubber by the rubber companies, and would itself handle all patent questions with Standard and others.

In the final agreement worked out by the Rubber Reserve Company, the large rubber companies, and Standard, the royalty for government plants is fixed at 1 per cent for the Buna patents for the duration of the emergency. Improvement patents of all parties are royalty free. On this basis, the royalty to Standard on a synthetic rubber tire selling for about $15 will be only 2½ cents.

For the manufacture of Butyl rubber, Standard has announced its willingness to grant royalty-free licenses for the duration of the war, with reasonable royalties to be determined by government authorities thereafter.

"YOU DON'T CATCH ME CUTTING CUSTOMERS IN TWO! I FEATURE PENNSYLVANIA MOTOR OIL"

says
WILLIAM ECKEL
Owner-Manager
Eckel's Auto Service
Cedar Lane,
Teaneck, N. J.

CUSTOMERS who like your gas — but not your oil — are only "half-customers." And you're apt to have a lot of them if you don't sell emblem Pennsylvania Motor Oil!

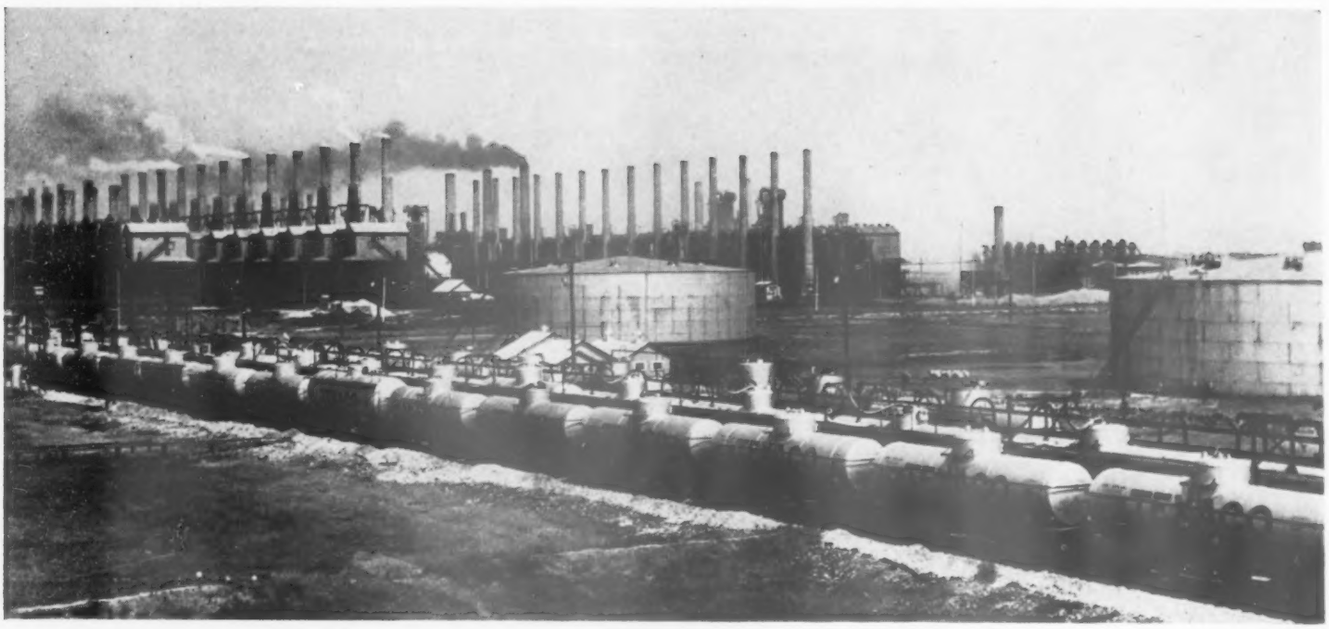
Pennsylvania customers represent a *juicy portion* of your total prospects for oil! Don't neglect them.

Lots of customers don't complain when they can't get Pennsylvania. They just drive on. So — get out your books today. Look at your gas sales. Then check your oil record. Maybe your oil sales aren't as high as they should be—or *could be*—if you handled emblem Pennsylvania. Better talk to an Association man or write headquarters.

MEMBER OF PENNSYLVANIA GRADE
Guaranteed
100% PURE
PENNSYLVANIA
OIL
CRUDE OIL ASSOCIATION
PERMIT NUMBER
Made from
the highest grade crude oil in the world

OIL CITY, PENNSYLVANIA

PENNSYLVANIA GRADE CRUDE OIL ASSOCIATION



Each tank car put into service to the East Coast increases the East's transportation capacity by 15 bbls. per day. More than 30,000 cars are now in this service—but more are needed. In above picture, a double string of cars is loading at the Port Arthur works of The Texas Co. Rail hauls from Texas to New York are commonplace today

How YOU Can Speed Tank Cars

Here's What You, Mr. Oil Man, Can Do to Keep 'Em Rolling

One of the big battles of our nation in the war is being fought NOW, and the oil companies of the country, big and little, are in the front line.

The struggle is to make the oil industry's tank cars serve to the utmost in keeping the vital East Coast territory supplied with the more than 1,500,000 bbls. daily of crude and refined products necessary to keep its war industries functioning and to prevent disruption of civilian supplies.

The East Coast normally receives its crude and products practically entirely by tanker, from the Gulf Coast and South America. Of approximately 275 tankers in eastern coastwise service last spring, over 30 have been sunk by enemy action and many more have been transferred to British service and to serve our own and other military needs of the United Nations. In addition to the losses and diversions, coastwise tanker trips have been slowed up by precautions taken because of submarine activity.

To some extent barges and pipelines are making up this shortage in transportation facilities to the East Coast, caused by the sinking and diversion of tankers. But the oil industry's tank cars are being called upon to carry the largest part of the burden. As an example of what is already being done, tank cars moved into the East Coast area an average of 464,561 bbls. daily of crude and products during the third week in March. This was equivalent to the supply of about 113 tankers. The president of the Assn. of American Railroads told a committee of Congressmen last fall that, early in September, "the railroads were moving only approximately 15,000 bbls. of oil per day into the Atlantic States area."

Over 30,000 tank cars are now in service supplying the East Coast territory with crude and products essential to the war effort and the comfort of civilians. But still more cars are needed.

Authorities state that each tank car added to this movement INCREASES THE SUPPLY ON THE EAST COAST BY 15 BARRELS A DAY. Every oil marketer and bulk plant manager, at any inland point in the country, who halves a day in the unloading of a car and starting its back haul to the supplier, helps add to the number of cars that can be put into East Coast service and fires an effective shot at our enemies in this real battle of the war.

Under the present program of the Tank Car Committee of the Office of Defense Transportation, oil companies are called on to load and unload tank cars in 24 hours, 7 days a week. Penalties are under consideration for marketing men who hold cars on their sidings more than 24 hours.

Here are steps which even the bulk plant receiving an occasional tank car of gasoline can take to expedite the movement of cars.

1. Make sure that orders placed with suppliers give all necessary data to aid the refiner in making the shipment promptly, over the best routing to the bulk plant's siding.

2. Place orders a week ahead of the time the car is to be shipped, so the refinery can make the best disposition of all its cars and avoid disrupting its schedule by unnecessarily shooting cars out on "rush" orders.

3. Arrange in advance for prompt and efficient unloading of the car immediately after it is spotted at the bulk plant, regardless of time of day, or whether Saturday afternoon, Sunday or holiday.

4. Notify the local railroad agent just as soon as the car is unloaded, so it can be picked up promptly by the switching crew and started back to the refinery.

Details of procedure under each of these steps for expediting the movement of tank cars is given below, as obtained by NPN from traffic departments of oil companies:

Even though the marketer or bulk plant manager places an order by wire

Extra...

In Webster, you'll find *Extra* defined as "beyond what is due, usual, or necessary."

"Extra" is—as a matter of policy—an essential ingredient of Gulf petroleum products. Thus you will always find their quality *"beyond what is due, usual, or necessary"* for the job for which they are recommended.

GULF

GULF OIL CORPORATION • GULF REFINING COMPANY

3800 Gulf Building, Pittsburgh, Pa.

or telephone call, he should include in his confirming letter the following data:

1—If the trade or company name of the gasoline or other product is not noted, sufficient specifications for the material should be given so the order department of the refinery will not have to delay the shipment while further information is secured from the purchaser.

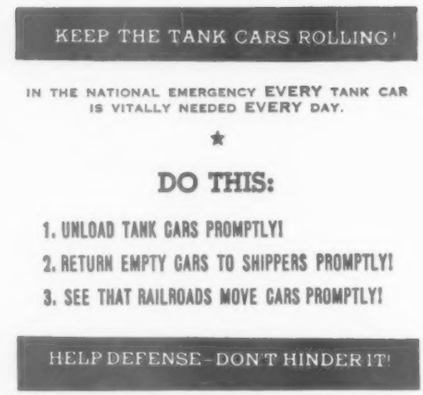
2—The date on which the marketer wants the shipment to ARRIVE at his bulk plant, rather than the date on which the refinery is to ship it. The supplier's traffic department, particularly in these emergency times, can figure out more accurately than the marketer the date on which the shipment should leave the refinery to reach the marketer on the desired date.

If a shipment is wanted at once, it is better to specify "immediate" than "rush" in the order. In the former case the refinery will try to ship so the car will arrive as soon as possible in the working week; in the latter the car may be shipped to arrive late Saturday or Sunday, when it will not be as convenient to unload it.

3—It is important to name the final destination line in the order, the railroad on which the bulk plant is located. In Central Freight Assn. territory and in some other parts of the country, the petroleum tariffs now include the routing. Where the refinery shipping department, as in the case of a new customer, picks a destination line which has no physical facilities in the marketer's town for transferring, the car would have to be back-hauled to a point where the connection could be made. In that event there would be considerable delay for the car, and the freight the marketer pays would be higher.

Where the marketer, in his order, names the road on which his plant is located, many refiners will route the shipment as far as possible on that road, so the marketer is in the position of giving it some of his business, in addition to the local switching service.

4—The marketer or agent should make sure that his instructions to his supplier include mailing the tank car release notice to the point of destination of the car. Sometimes consignees ask that the release notices be sent to the company headquarters, which may be in a different town than where the car is shipped. Then a delay may occur in sending the release notice on to the destination point and the release notice must be turned over to the local railroad agent before the car can start the return trip to the refinery or supply point.


KEEP THE TANK CARS ROLLING!
IN THE NATIONAL EMERGENCY EVERY TANK CAR IS VITALLY NEEDED EVERY DAY.
★
DO THIS:
1. UNLOAD TANK CARS PROMPTLY!
2. RETURN EMPTY CARS TO SHIPPERS PROMPTLY!
3. SEE THAT RAILROADS MOVE CARS PROMPTLY!
HELP DEFENSE—DON'T HINDER IT!

This sticker is used by Anderson-Prichard, Oklahoma City, as a reminder that prompt handling of tank cars is urgent

Time Needed for Shipping

Oil companies say the refinery should have a week, if possible, between the time an order is received and the date the material is shipped. This gives the plant a better chance to ship in the proper capacity car and to distribute its own tank cars to the best advantage. On lubricating oil, orders should be placed as much as 30 days ahead, because in many cases they must be handled in compartment cars, of which the refiner has but a limited number.

Unloading the Tank Car

The emergency program of the transportation division of the Office of Petroleum Co-ordinator calls for loading and unloading tank cars in 24 hours, 7 days a week. To bring about full participation by marketers in holding to this schedule in unloading, refiners are considering such penalties as taking companies who use more than this time out of the "favored customer" class. Tank car owners, also, are considering imposing a stiff rental fee on cars held at racks for over 24 hours. This rental would be passed on to the oil company where the delay was in unloading.

In addition to arranging to have a man available at the bulk plant as soon as a tank car is spotted, whether it is late Saturday, Sunday or on a holiday, the following are suggestions of refining companies to expedite unloading.

1—Make sure well ahead of the expected arrival of the car that there is ample storage capacity at the plant for its contents. Where necessary, local truck deliveries can be planned that will withdraw material from the tanks and provide adequate capacity.

2—Check pumps, motors or engines, valves and lines, where they are not in use every day, to make sure they are in working order and will cause no delay when the car arrives.

3—Be ready to promptly gauge the car and make the temperature correction, to determine the amount of outage. It is said this operation should take not more than 20 minutes.

The actual pumping out of the gasoline or other products in the car, aside from lubricating oils or heavy fuel oils where heating with steam coils is necessary, should not take more than 2 hours, even with the pumps of rated capacity of 90 gal. a minute, which are in use at a great many small bulk plants. The actual rate of unloading should be determined from the time taken to pump out the car. Oil company engineers say that old pumps with many years in service should operate at 80 to 90% of the rated capacity shown on the pump. Thus a 90-gal. rated pump in long service should deliver at a minimum rate of 72 gals. a minute. This means the actual pumping out of the gasoline from an 8000-gal. car should not take more than 111 minutes.

Where the bulk plant manager's check of the actual unloading time indicates that deliveries are not at the rate of 80 to 90% of rated capacity of the pump, the following points should

A TANK CAR SHORTAGE IS HERE!
Unless our Customers unload tank cars promptly, and just as promptly return the empty tank cars, shipments to you—to everyone—will be delayed, and our war effort will be impeded.
THE STANDARD OIL CO.
An Ohio Corporation

Standard Oil Co. of Ohio sends out to all its marketers and other tank car customers this notice, 7 by 8 inches in size. Customers are asked to post the notice in their warehouses and at loading racks to keep in all operators' minds the necessity for prompt unloading of cars

be inspected for leaks in the system or other causes of trouble:

1—The screen on the suction side of the line should be taken out and cleaned. It may be clogged. Efficiency of the pump can be cut down as much as 60% by extreme case of clogged screens holding back the flow of liquid in the suction line to the pump.

2—The suction line may have developed a leak, particularly at the swing joint. While it may not show much of a loss of liquid, air getting into the line means less gasoline is moving through the pump.

3—Inspect the by-pass valve in the pump. It may be necessary to take the head off the valve and clean the seat. Dirt lodged on the valve seat allows part of the liquid from the suction line to by-pass the pump and thus it is not entering the pressure side of the line and delivery of liquid into storage tanks is impeded.

4—Inspect the pump unit for need of adjustment of parts or new gaskets, or cleaning or lubrication; also the gasoline engine, if the pump is driven by this power. The belt driving the pump may need tightening.

Where attention to the above points does not bring the rate of delivery to a normal rate and where the trouble has existed for some time, the cause may be in the arrangement of the suction line. For best operation under normal conditions, the suction line should not be more than 60 ft. in length between the pump and the swing joint on the loading line with as few elbows as possible. These should be 45-degree elbows instead of 90 degree. The suction line in general should be a half-inch larger diameter than the pressure line. Where the suction line is not in accordance with good practice, it may be possible for the marketer to correct it, without the need of much new equipment.

Leaks in the suction line and drawing air into the line by stripping the tank car should be particularly avoided, oil company engineers say, because the moving of part air through the line means greater wear on the pump than when liquid only is pumped; also it means that air is getting into the lines and the tanks and the evaporation rate may be increased.

Returning the Tank Car

Closer co-operation of the marketer with his local railroad agent will shorten greatly the time between the completion of unloading the car and when it is picked up by the switching crew to start back to the refinery. In the past, marketers sometimes mailed to the agent his copy of the release notice for the car.

This meant a delay sometimes of 24 hours before the railroad agent was officially authorized to pick up the car. It is suggested that now the marketer either call the local agent and tell him when the car will be ready, or make arrangements with the switching crew

Birtank Pressure Roofs

BIRTANKS—for Gasoline or Oil Storage

REALIZING the great saving to be effected by the storage of volatile oil products under pressure, the Standard Oil Company of Kentucky has used tanks designed for this purpose exclusively at eight of their terminals on the great Plantation Pipe Line system, one of which is shown above.

These tanks range in capacity from 10,000 barrels to 35,000 barrels. The Terminal handles kerosene, tractor fuel, burner oil and three grades of gasoline. While the tanks are of conventional appearance, they are unique in that THEY ARE DESIGNED TO OPERATE AT 1 LB. PRESSURE. Tremendous savings in evaporation losses are thereby realized, when compared with other forms of construction, which of necessity operate at lower pressures.

The Birtank pressure tank is the answer to your evaporation loss problems. For further information on this special form of construction, consult the Birmingham Tank Company, Birmingham, Alabama.

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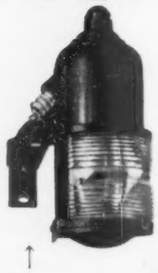

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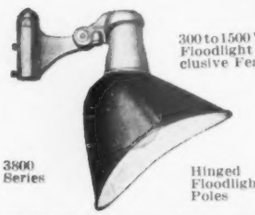

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National Petroleum News
Cleveland, Ohio

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to have them pick up the car on their next trip after spotting it to unload. Since switching crews in many cases are making two rounds a day of industrial plants to spot and pick up cars, and it is possible that switching operations may be carried on at night, such co-operation will greatly reduce the time the car stands before it is picked up.

Refiners urge marketers to make it a point always to mail back to the refiner the third copy of the release notice, with the data given as to the date of arrival of the car, date unloaded and date the car was released from his siding to the railroad. Since this notice contains the return routing it aids the refiner in following the movement of the car back to his plant and the data on it aids the refiner in keeping his tank car mileage records.

TRADEMARKS

The following are trademark applications pertinent to our field pending in the United States Patent Office which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade-Mark Company, Munsey Building, Washington, D. C., trademark specialists.

CONVOY, Western Auto Supply Co., Ser. 449,400. Kansas City, Mo. Filed Dec. 11, 1941. For Motor Oils. Published March 17, 1942.

SENTINAL, A. Gross Candle Co., Inc., Baltimore, Md. Filed Dec. 18, 1941, for candles made of oils and greases. Ser. 449,576. Published March 17, 1942.

CARPET OF VELVET, Ser. No. 449,337, The Cincinnati Ball Crank Co., Cincinnati, Ohio. Filed: Dec. 10, 1941. For lubrication equipment—namely, lubricator wall batteries, portable and stationary barrel pumps, oil drains, grease and lubricant hose rolls. Published: March 24, 1942.

FLEETWAY and picture of train, Ser. No. 449,797, Fleet Oil Co., LaFollette, Tennessee. Filed: Dec. 27, 1941. For gasoline and motor oils. Published: March 24, 1942.

California Standard Boosts Bond Sales

NPN News Bureau

LOS ANGELES — Standard Oil of California is one company with no personnel problems. That is so far as keeping workers in the Standard Victory House staffed by that Company in Pershing Square, Los Angeles, for the sale of Defense stamps and bonds.

This Victory House, made from 1500 Standard Oil glass banks, was built and presented to the U. S. Treasury Dept. 3 days before Pearl Harbor became a name to remember.

The original plan was to use the house for about 6 weeks as an attraction for the sale of stamps. Now it has proved so successful that California Standard is planning to open several others.

Standard Oil staffs the house with beautiful sales girls, called Chevronettes and maintains a manager who handles the accounting.

Daily at 4:30 p. m., 6 days a week, motion picture celebrities are introduced from the stage of the house and then autograph Defense Savings Albums. Personalities appearing include Marlene Dietrich, Lana Turner, Mickey Rooney, John Barrymore, Horace Heidt, Babe Ruth. Various organizations, such as the Elks, Lions, American Legion, Knights Templar and Jewish War Veterans, also participate in the stamp and bond selling program.

The Defense Savings Staff reports that it has had many $50,000 days.

California Standard's chevronettes put Victory House letters in place and incidentally add somewhat to general effect

Bozo, the clown, licking a defense saving stamp at Victory House, proves it's a job that doesn't require lots of concentration

LETTERS FROM NPN'S READERS

Likes Platt's Book

McColl-Frontenac Oil Co., Ltd., Calgary, Ont., Canada, after reading NPN Editor Platt's book "The Future for the Independent Oil Jobber", sent the following enthusiastic letter:

Men who are charged with the responsibility of industry on the home front during these days of world chaos depend upon an organization such as yours for all the new facts concerning the industry. We feel that the above book, as well as the weekly NATIONAL PETROLEUM NEWS, contribute a great deal in keeping the petroleum industry organized on a wartime basis and the men responsible for the safe conduct of the industry well informed with respect to present trends and with forecasting conditions anticipated in the future.

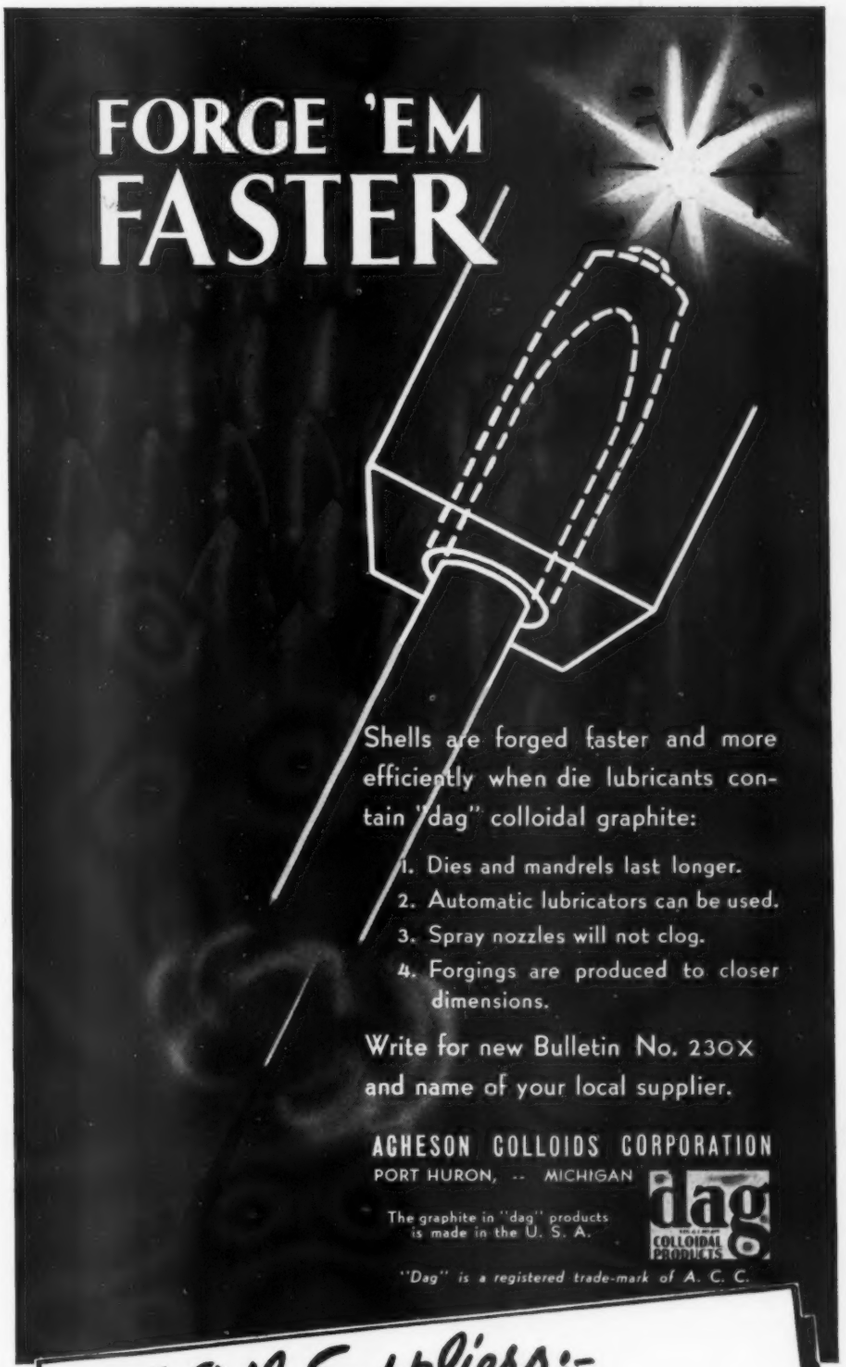
We in Canada are facing problems similar to those of the petroleum industry in the United States and we are glad that you are taking an active interest in Canada's petroleum problems and reporting from time to time the activities of the Oil Controller, the various distributing companies and refining organizations of Canada realizing, as you do, that our two nations must march together through rough weather to Victory.

Your book, "The Future for the Independent Oil Jobber", has been read with considerable interest by our Divisional Manager, as well as by a number of our marketing executives, and we do feel that you are contributing very valuable information at a time when we require guidance and when this information indicates what steps we should take and plans we might incorporate into our present program for the future well-being of our own Company.

We appreciate NATIONAL PETROLEUM NEWS as a weekly edition, also the book you are now making available to the petroleum industry. Our comment, therefore, is that we appreciate your efforts and hope you will be able to continue to keep the petroleum industry well informed which will, in the long run, lead to better economic and social conditions within our own industry.

With best wishes for your future successful activities in this direction, we remain

Yours very truly,
McCOLL-FRONTENAC OIL
COMPANY LIMITED
T. W. Kendall,
Manager, Sales Promotion


FORGE 'EM FASTER
Shells are forged faster and more efficiently when die lubricants contain "dag" colloidal graphite:
1. Dies and mandrels last longer.
2. Automatic lubricators can be used.
3. Spray nozzles will not clog.
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Write for new Bulletin No. 230X and name of your local supplier.
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To Oil Suppliers:-

With a combined circulation of

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MAKING EVERY MINUTE COUNT!

You can reduce to a minimum the time needed for handling your bulk liquids in transit, by shipping via General American Terminals. For at these strategically located storage plants, speed is a fetish. It's speed with safety, too—the most modern precautions against leakage, contamination, evaporation, fire. And it's speed with economy—General American Service saves you money in many ways. Cut costs and schedules. Investigate!

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Freight cars—particularly tank cars—are vital to Victory. They must be loaded, unloaded, kept moving with all possible speed. Delays may cost lives!

ONLY GENERAL AMERICAN GIVES ALL THESE ADVANTAGES

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3. *INDEPENDENT OWNERSHIP.* Strictest privacy. We do not buy, sell or refine any oils.
4. *NO WHARFAGE.* There is no wharfage charge at our own private docks.
5. *SPEED WITH SAFETY.* Day and night crews, complete facilities, eliminate all shipping delays.
6. *LARGE TANK CAR FLEET.* Now working night and day, delivering essentials of war.
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A DIVISION OF GENERAL AMERICAN TRANSPORTATION CORP.

COMING MEETINGS

APRIL

Michigan Petroleum Assn., Annual Spring Convention, Detroit-Leland Hotel, Detroit, Mich., Tues.-Wed., April 7-8.

New Jersey Oil Trade Assn., Annual Spring Frolic, Robert Treat Hotel, Newark, N. J., Thurs., April 9.

American Petroleum Institute, Div. of Production, Eastern District, Spring Meeting, William Penn Hotel, Pittsburgh, Pa., Thurs.-Fri., April 9-10.

Midwest Power Conference, Annual Meeting, Palmer House, Chicago, Ill., Thurs.-Fri., April 9-10.

National Dixie Distributors, Inc., Bismark Hotel, Chicago, Ill., Mon.-Tues., April 13-14.

American Institute of Mining & Metallurgical Engineers, Cincinnati, O., Wed.-Fri., April 15-17.

National Petroleum Assn., 39th Semi-Annual Meeting, Hotel Cleveland, Cleveland, O., April 16-17.

Fuel Oil Distributors Assn. of New Jersey, 7th Annual Convention, Hotel Berkeley Carteret, Asbury Park, N. J., Thurs.-Fri., April 16-17.

American Chemical Society, 103rd Meeting, Memphis, Tenn., Mon.-Fri., April 20-24.

American Assn. of Petroleum Geologists, 27th Annual Meeting, Cosmopolitan Hotel, Denver, Colo., Tues.-Fri., April 21-24.

Petroleum Industry Electrical Assn., Washington-Youree Hotel, Shreveport, La., Wed.-Fri., April 22-24.

MAY

American Institute of Chemical Engineers, Semi-Annual Meeting, Boston, Mass., Mon.-Wed., May 11-13.

Natural Gasoline Assn. of America, 21st Annual Convention, Mayo Hotel, Tulsa, Okla., Wed.-Fri., May 13-15.

National Defense Exposition, Houston, Tex., Mon.-Sun., May 18-24.

National Assn. of Purchasing Agents, (Oil Company Buyers' Group), Waldorf-Astoria Hotel, New York, N. Y., Mon.-Thurs., May 25-28.

JUNE

Illinois-Indiana Petroleum Assn. and American Petroleum Institute, Illinois Basin Chapter, annual meetings combined, Robinson, Ill., Sat., June 6.

American Society of Mechanical Engineers, Semi-Annual Meeting, Cleveland, Ohio, Mon.-Thurs., June 8-11.

Oil Trades Assn. of New York, Sports Day, Pelham Country Club, Pelham Manor, N. Y., Tues., June 9.

American Society for Testing Materials, Chalfonte-Haddon Hall, Atlantic City, N. J., Mon.-Fri., June 22-26.

New Jersey Oil Trade Assn., Summer Golf Outing, Newark, N. J., Thurs., June 25.

SEPTEMBER

Oil Trades Assn. of New York, Sports Day, Pelham Country Club, Pelham Manor, N. Y., Tues., Sept. 8.

OCTOBER

Texas Mid-Continent Oil & Gas Assn., 23rd Annual Meeting, Dallas, Tex., Thurs.-Sat., Oct. 8-10.

American Society of Mechanical Engineers, Fall Meeting, Rochester, N. Y., Mon.-Wed., Oct. 12-14.

Ohio Petroleum Marketers Assn., Annual Convention and Marketing Exposition, Hotel Deshler-Wallick, Columbus, Ohio, Wed.-Thurs., Oct. 20-21.

National Lubricating Grease Institute, 10th Annual Meeting, New Orleans, La., Sun.-Thurs., Oct. 25-29.

1942 Illinois Mineral Industries Conference, Campus University of Illinois, Urbana, Ill., Fri.-Sat., Oct. 30-31.

NOVEMBER

American Petroleum Institute, 23rd Annual Meeting Stevens Hotel, Chicago, Ill., Mon.-Fri., Nov. 9-13.

American Institute of Chemical Engineers, 35th Annual Meeting, Statler Hotel, Cincinnati, O., Mon.-Wed., Nov. 16-18.

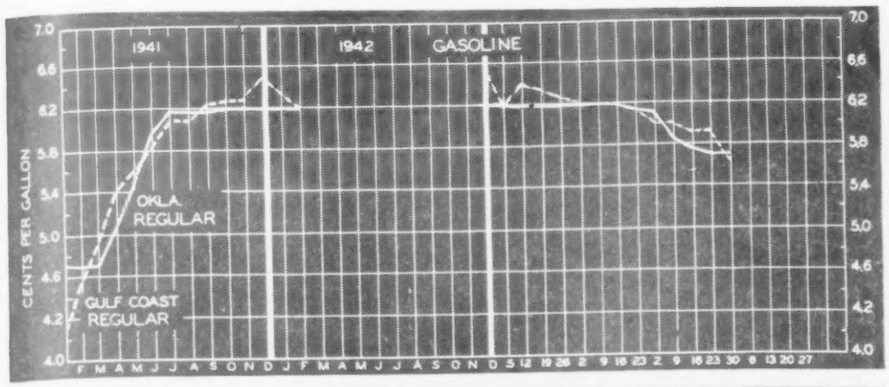
American Chemical Society, National Chemical Exposition and National Industrial Chemical Conference, Stevens Hotel, Chicago, Ill., Tues.-Sat., Nov. 17-21.

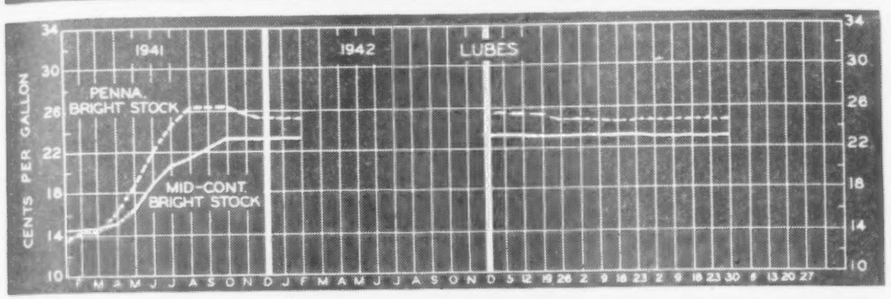
American Society of Mechanical Engineers, Annual Meeting, New York, N. Y., Mon.-Fri., Nov. 30-Dec. 4.

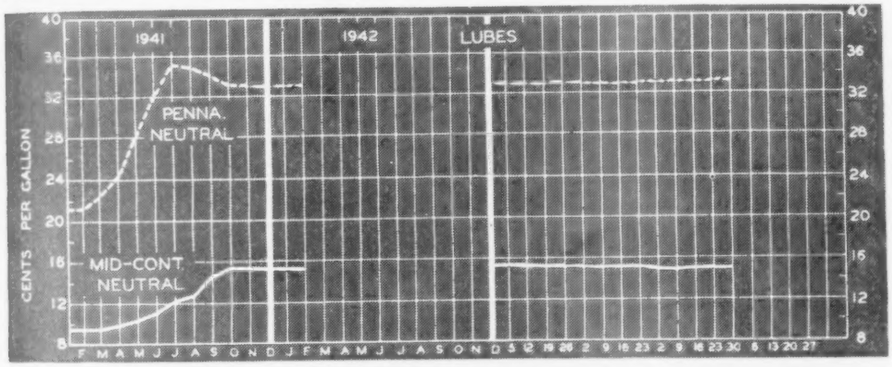
STATISTICS

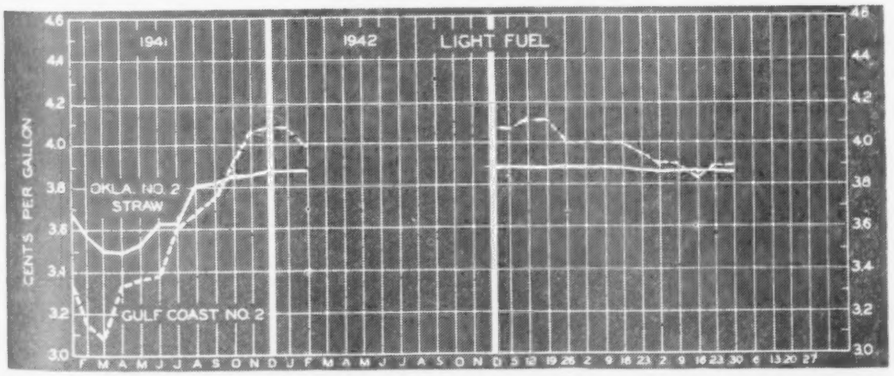
Refinery Prices

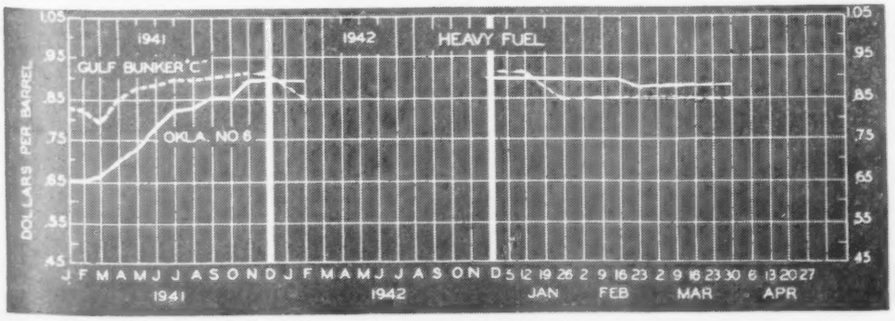
Monthly prices in graphs are averages of daily high and low prices shown in Platt's Oilgram Weekly prices are averages of high and low prices shown in Monday Oilgram, and in NPN











G.C.R.A. Stocks Report

(Compiled by Gulf Coast Refiners Assn. from reports of member companies. Figures in barrels.)

	Mar. 15	Mar. 1
Gasoline Stocks, Total	2,509,401	2,350,533
Aviation Gasoline	326,655	272,931
Motor Fuel	2,029,754	1,930,715
Naphtha	153,992	146,887
Kerosine	130,724	167,312
Diesel Gas Oil	353,435	520,040
Diesel Fuel	26,892	82,821
Gas Oils, other types	1,342,895	1,192,232
No. 5 Fuel Oil	469,937	437,878
Bunker "C" Fuel Oil	690,787	714,912
Cutback asphalt	35,224	65,157
Crude Runs (daily average)	95,731	110,447

Mid-Continent Lube Statistics February, 1942

(Compiled by Western Petroleum Refiners Ass'n. from reports of 12 member companies. Figures in barrels of 42 gallons.)

	Bright Stock	Viscous Neutrals	Par-affin Oils	Steam Re-fined Stock*	Blended Oils
Production	197,984	271,053	68,184	22,651	293,997
Shipments:					
Domestic	160,092	252,911	64,304	18,543	255,626
Export	52,908	17,380	122	59	23,374
Total	213,000	270,291	64,426	18,602	279,000
Inventory, Feb. 28, 1942	435,264	249,462	73,797	87,034	135,099
Inventory, Jan. 31, 1942	450,280	248,700	70,039	82,985	120,102
Inventory, Feb. 28, 1941	393,769	277,507	69,225	81,690	193,138

*New basis of reporting began January 1940.

Natural Gasoline Production

(Bureau of Mines figures; thousands of barrels)

	Jan. 1942**	Dec. 1941*	Jan. 1941*
Appalachian	292	238	221
Ill., Mich., Ky.	293	184	116
Oklahoma	903	774	750
Kansas	182	164	163
Texas	3,522	2,684	1,995
Louisiana	659	594	221
Arkansas	69	73	69
Rocky Mountain	256	207	187
California	1,312	1,164	1,162
Total U. S.	7,488	6,082	4,884
Daily Average	241	196	158

* Includes recycle condensate.
** Includes recycle condensate and liquefied petroleum gas.

Pennsylvania Lubricating Oils

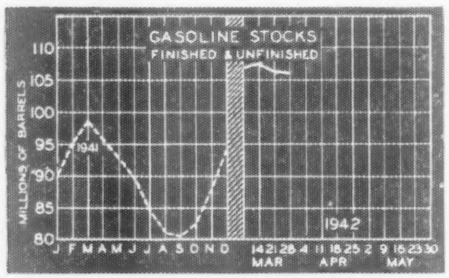
(Compiled by National Petroleum Assn. from reports of all companies which refine Pennsylvania grade crude oil. Figures in barrels)

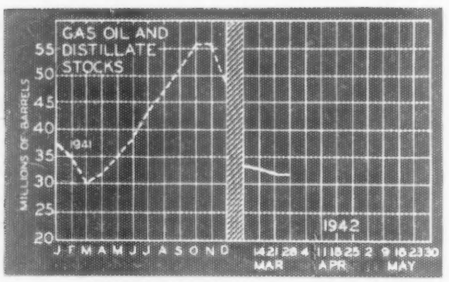
	Production Feb., 1942	Inventory Feb. 28, 1942	Inventory Jan. 31, 1942	Inventory Feb. 28, 1941
1. Raw Long Residuum	79,578	42,720	49,847	33,978
2. 600 Steam Refined Stock	296,201	268,161	262,726	249,247
3. Other Steam Refined Stock	46,819	71,902	78,819	102,212
4. Finished Dewaxed Long Residuum	47,863	56,495	70,597	72,230
5. Bright Stock	173,145	337,053	363,047	477,891
6. Viscous Neutral	73,228	95,524	74,126	83,889
7. Viscous Neutral	98,963	82,396	77,079	134,260

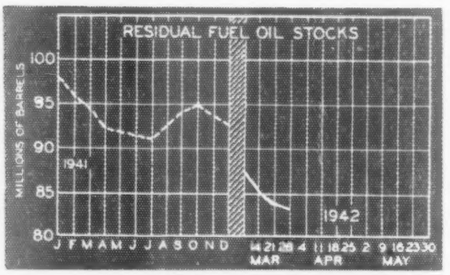
Item 1 includes all raw long residuum below, and not salable as, 600 fire.
Item 2 includes all steam refined stock commonly sold or used as 600 and as raw material for bright stock.
Item 3 includes all material not reported in items 1 & 2.
Item 5 does not include any material reported in item 4.
Item 6 includes viscous neutral below 180 vis. but not below 142 vis. at 100.
Item 7 includes viscous neutral 180 vis. at 100 and above.

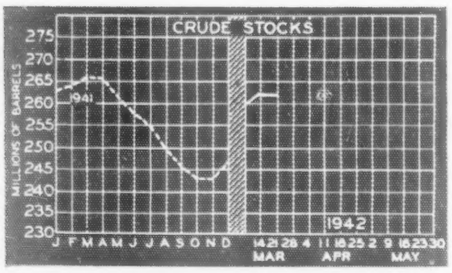
STATISTICS

Monthly figures are actual as reported by Bureau of Mines. Weekly figures are as estimated by American Petroleum Institute on Bureau of Mines basis, except crude stocks which are as reported by Bureau of Mines.









Refinery Operations

(American Petroleum Institute figures in thousands of barrels of 42 gallons each. Figures include reported totals plus an estimate of unreported amounts and are therefore on a Bureau of Mines basis.)

Districts	Daily Potential Refining Capacity Week Ended		Per Cent of Refining Capacity Reporting Week Ended		Daily Average Crude Runs to Stills Week Ended		Per Cent of Reporting Capacity Operated Week Ended	
	Mar. 21	Mar. 14	Mar. 21	Mar. 14	Mar. 21	Mar. 14	Mar. 21	Mar. 14
East Coast	714	714	100.0	100.0	483	502	67.6	70.3
Appalachian	174	174	84.5	84.5	142	145	81.6	83.3
Ind., Ill., Ky.	784	784	84.9	84.9	691	694	88.1	88.5
Okla., Kans., Mo.	418	418	81.1	81.1	320	325	76.6	77.8
Inland Texas	266	266	65.0	65.0	178	186	66.9	69.9
Texas Gulf	1,130	1,130	91.3	91.3	860	854	76.1	75.6
La. Gulf	176	176	94.9	94.9	171	165	97.2	93.8
N. La. Ark.	97	97	51.5	51.5	82	88	84.5	90.7
Rocky Mt.	138	138	50.7	50.7	98	91	71.0	65.9
California	787	787	90.9	90.9	574	538	72.9	68.4
TOTAL U. S.—B. of M. Basis	4,684	4,684	86.9	86.9	3,599	3,588	76.8	76.6
U. S.—B. of M. Basis March 22, 1941					3,653			

	Gasoline Production at Refineries inc. Natural Blended Week Ended		Stocks of Finished and Unfinished Gasoline Week Ended		Total Stocks Gas Oil & Distillates Week Ended		Total Stocks Residual Fuel Oil Week Ended	
	Mar. 21	Mar. 14	Mar. 21	Mar. 14	Mar. 21	Mar. 14	Mar. 21	Mar. 14
East Coast	1,296	1,401	16,973	18,043	7,935	7,700	6,097	6,292
Appalachian	468	476	3,784	3,914	322	362	602	614
Ind., Ill., Ky.	2,543	2,612	23,060	23,058	2,726	2,751	3,729	3,838
Okla., Kans., Mo.	1,158	1,184	10,378	10,492	808	838	1,757	1,842
Inland Texas	768	811	3,842	3,835	87	69	1,110	1,172
Texas Gulf	2,326	2,378	22,257	21,934	6,792	7,115	8,237	8,625
La. Gulf	480	455	4,554	4,728	1,198	1,457	1,817	1,876
N. La., Ark.	238	256	1,270	1,287	112	117	265	283
Rocky Mt.	317	304	2,515	2,513	307	307	589	611
California	1,641	1,564	17,558	17,425	12,003	12,115	59,822	60,336
TOTAL U. S.—B. of M. Basis	11,235	11,441	106,131*	107,229†	32,290	32,831	84,025	85,489
U. S. —B. of M. Basis March 22, 1941.	11,817		98,723		31,338		94,141	

*Finished 97,905,000 bbls.; Unfinished 8,226,000 bbls. †Finished 98,834,000 bbls.; Unfinished 8,395,000 bbls.

N. P. N. Gasoline Index

	Dealer T.W. Cents per Gallon	Tank Car Cents per Gallon
Mar. 30	10.34	6.49
Month ago	10.17	6.73
Year ago	8.83	5.32

Dealer index is an average of "undivided" dealer prices, ex-tax, in 50 cities.

Tank car index is a weighted average of following wholesale markets for regular-grade gasoline, FOB refineries or terminals: Okla., Mid-Western, W. Penna., Calif., N. Y. Harbor, Philadelphia, Jacksonville, Boston, Gulf Coast.

Pennsylvania Crude Runs

(Compiled by National Petroleum Assn. from reports of all companies which refined Pennsylvania crude. Figures in barrels.)

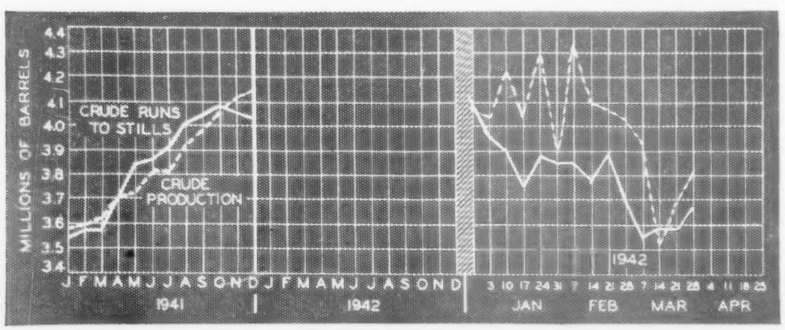
Week Ended	Daily Average	Week Ended	Daily Average
Jan. 3	72,172	Feb. 21	82,682
Jan. 10	77,676	Feb. 28	84,173
Jan. 17	81,658	Mar. 7	80,131
Jan. 24	84,089	Mar. 14	76,862
Jan. 31	82,603	Mar. 21	79,510
Feb. 7	74,927	1941 Low	61,384
Feb. 14	77,436	1941 High	84,326

Crude Oil Stocks

(Bureau of Mines figures; thousands of barrels)

Grade or Origin	Mar. 14	Mar. 21	Change
Pennsylvania Grade	3,437	3,435	— 2
Other Appalachian	1,533	1,565	+ 32
Lima-Michigan	1,536	1,576	+ 40
Illinois-Indiana	19,409	19,297	— 112
Arkansas	2,978	2,965	— 13
Kansas	7,646	7,576	— 70
Louisiana:	13,383	13,304	— 79
Northern	4,034	4,029	— 5
Gulf Coast	9,349	9,275	— 74
Mississippi	2,545	2,409	— 136
New Mexico	7,671	7,282	— 389
Oklahoma	50,318	50,573	+ 255
Texas	94,271	95,270	+ 999
East Texas	22,840	23,291	+ 451
West Texas	22,624	23,481	+ 857
Gulf Texas	26,556	26,140	— 416
Other Texas	22,251	22,358	+ 107
Rocky Mountain	16,563	16,346	— 217
California	39,169	38,844	— 325
Foreign	1,604	1,282	— 322
Total U. S. refinable	262,063	261,724	— 339
Heavy in California	11,076	11,245	+ 169
E. Coast refinery crude	8,643	8,249	— 394
E. Coast pipe line crude	314	305	— 9
E. Coast refined products	41,411	40,384	—1,027
Total all oils	50,368	48,938	—1,430
E. Coast bonded stocks (estimated)	1,000	900	— 100
E. Coast kerosine at terminals	‡	1,786	‡

‡ Not available.

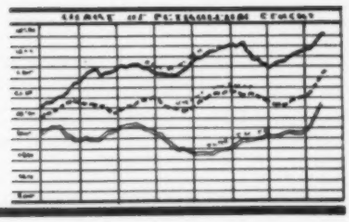


Crude Oil Production

(American Petroleum Institute Figures)

	WEEK ENDED Mar. 28 Barrels (Daily Average)	WEEK ENDED Mar. 21 Barrels (Daily Average)		WEEK ENDED Mar. 28 Barrels (Daily Average)	WEEK ENDED Mar. 21 Barrels (Daily Average)
Oklahoma	387,350	390,350	Eastern (Ill. & Ind. excluded	96,800	98,600
Kansas	238,900	228,750	Michigan	45,900	46,100
Nebraska	4,150	4,150	Wyoming	91,000	90,300
Texas	1,410,150	1,243,700	Montana	21,400	21,450
Louisiana	334,900	332,850	Colorado	5,600	5,900
Arkansas	76,750	76,500	New Mexico	92,800	92,600
Mississippi	94,250	90,300	California	583,000	627,000
Illinois	317,550	323,000			
Indiana	19,350	20,150			
			Total U.S.	3,819,850	3,691,700

Oil MARKETS



Atlantic Coast

NEW YORK, March 28.—All products were priced higher in Eastern Seaboard markets the past week following announcement March 25 of amendment No. 4 to OPA Price Schedule 88 granting advances in suppliers' quotations to offset increased costs of transporting material overland to District 1.

At most seaboard points all grades of gasoline were advanced 0.5c. At New York 68-70 and 72-74 oct. (ASTM) grades were priced at 8.8c, tank cars, and tank cars of min. 80 oct. (research) ranged 9.3 to 9.8c.

Kerosine, Nos. 2 and 3 fuels, diesel oil (shore plants) and gas house gas oil were priced 0.4c higher at most points. Nos. 5 and 6 fuels and Bunker "C" were priced 20c per bbl. higher and diesel bunkers 16.8c per bbl. higher.

Mid-Continent

TULSA, March 28.—Grade 26-70 natural gasoline wavered somewhat the past week, but at week's end sales prices were at substantially the same levels as they were two weeks ago. Seller who had been quoting 1.75c, FOB Breckenridge, said he had sold "4 or 5 cars" for shipment over the balance of March at undisclosed price and withdrew from market. Five cars were later sold at 2c, FOB Breckenridge, and last reported quotations were at 2c by 4 sellers. Last reported sales price FOB Group 3 was 2.375c for 1 car although 3 cars sold at 2c early in the week; 3 sellers quoted 2.25c and two, 2.375c.

Demand for refined gasoline was "good" to "very good" as inquiries were received for shipment to East Coast; some shipments were being delayed due to scarcity of tank cars. Refiners' quotations were generally unchanged.

Mid-Western

CHICAGO, March 28.—Heavy demand for fuel oils, particularly heavy oils, from the east was reported by most Mid-Western refiners the past week. Tank cars of every size and shape were being pushed into service, with several refiners reporting from "2 to 5 days behind on shipments—due to lack of tank cars".

Open spot sales reported during the week by 4 marketers were: 6 cars 78 oct. Ethyl, 2 cars at 5.875c, 2 cars at 6c, and 1 car at 6.125c; 12 cars 70-72 oct., 2 cars at 5c. and 10 cars at 5.125c; 3 cars 60 oct. & below at 4.25c; 6 cars range oil at 4c, and 3 cars No. 2 straw at 3.5c, FOB Group 3.

Refiners Group 3 quotations ranged 6.375 to 6.75c for 78 oct., 5.375 to 6c for 72-74 oct., 4.625 to 5.25c for 60 oct. & below, 4c for range oil, and 3.6 to 3.625c for No. 2 straw. Marketers Group 3 quotations ranged 5.875 to 6.125c, 5 to 5.5c, 4 to 4.25c, 3.875 to 4c, and 3.6 to 3.625c, for the 5 products, respectively.

Gulf

NEW YORK, March 28 — Gasoline was quoted lower at the Gulf the week ended March 28, with refiners reporting quotations of 5.5c on cargoes of 72-74 oct. leaded and 68-70 oct. unleaded material, down 0.25c from previous lows. Other refiners quoted 72-74 leaded to 6c, 70 unleaded to 5.75c, and 68 unleaded to 6.25c.

Some movement of gasoline from the Gulf by tank car was reported although rail shipments largely were of fuel oils. Refiners owning or controlling cars were said to be selling fuel with the provision that buyers also take some gasoline.

Pennsylvania

NEW YORK, March 28.—Indecision in Western Penna. refined products markets followed announcement the past week of OPA-approved price advances of 0.5c on gasoline and 0.4c on distillate fuels in Eastern states. Advances were granted to offset increased transportation costs involved in bringing material overland to the East, and some Penna. refiners said they could not see how measure applied to them. Others expressed doubt that trade would warrant increases in full amounts granted, saying they thought smaller advances were all that would be possible.

Advances of refiners who increased prices were 0.5c on gasoline and ranged from 0.125 to 0.4c on fuel oil. Lows of quotations for all products were unchanged.

California

LOS ANGELES, March 27.—Fuel oils continue strong on the West Coast with Independents selling within 5 to 10c per bbl. of major company posted prices for heavy grades. Many Independent refiners are out of the market due to lack of heavy crude.

Natural gasoline also remains strong. Major postings for 21 v.p. grade is 4.75c, but spot prices range from 5.25 to 5.375c.

Quotations for other products were generally unchanged.

Index of Governmental Orders Concerning Petroleum Prices

Orders, "requests", "ceilings", and other statements issued by governmental agencies concerning prices of petroleum and products, prices for which are published in this market section of NATIONAL PETROLEUM NEWS, have been published as follows:

	NATIONAL PETROLEUM NEWS	PLATT'S OILGRAM	Platt's OIL-Law-GRAM
Aug. 4, '41—"Ceiling" on Penna. neutral	Aug. 6, pg. 5	Aug. 4, pg. 1	Pg. 17
Sept. 4, '41—"Ceiling" on Gulf Coast Minimum 80 oct. (research) gasoline	Sept. 10, pg. 7	Sept. 5, pg. 1	Pg. 58
Nov. 7, '41—See Jan. 17, '42 below.			
Nov. 10, '41—See Jan. 17, '42 below.			
Nov. 21, '41—Maximum prices for paraffin wax	Nov. 26, pg. 5	Nov. 21, pg. 1	Pg. 66
Nov. 28, '41—See Jan. 17, '42 below.			
Jan. 17, '42—OPA letter restating contents of letters of Nov. 7, 10 and 28, '41;	Jan. 21, pg. 7	Jan. 19, pg. 1	Pg. 135
Jan. 28, '42—Amendment No. 1 to paraffin wax price schedule	Feb. 11, pg. 20	Jan. 29, pg. 1	Pg. 153
Feb. 2, '42—OPA Price Schedule No. 88	Feb. 11, pg. 17	Feb. 4, pg. 1	Pg. 159
Feb. 5, '42—Amendment No. 1 to OPA Price Schedule No. 88	Feb. 11, pg. 18	Feb. 9, pg. 1	Pg. 167
Feb. 7, '42—Amendment No. 2 to OPA Price Schedule No. 88	Feb. 11, pg. 18	Feb. 9, pg. 1	Pg. 167
Feb. 17, '42—Amendment No. 4 to OPA Price Schedule No. 88		Feb. 19, pg. 1	Pg. 187
Amendment No. 1 to Revised Price Schedule No. 88 (Combined form of Schedule 88 and its 4 previously issued amendments)	Mar. 11, pg. 15	Mar. 7, pg. 1	Pg. 205
Mar. 25, '42—Maximum prices for Penna. grade crude		Mar. 25, pg. 1	Pg. 237
Mar. 26, '42—Maximum s.s. prices for regular-grade gasoline in East Coast & Pacific Northwest		Mar. 25, pg. 4	Pg. 243
Mar. 26, '42—Approval of 0.5c advance in gasoline, Atlantic Coast states		Mar. 25, pg. 4	Pg. 241
Mar. 26, '42—Approval of 0.4c advance in kerosine and light fuels, Atlantic Coast states		Mar. 25, pg. 4	Pg. 241
Mar. 26, '42—Maximum prices for Bunker "C" & No. 6 fuel, East & Gulf Coasts		Mar. 25, pg. 4	Pg. 242

REFINERY and SEABOARD PRICES

In bulk lots by Motor Transport, Tank Car, Barge or Tanker as shown

(NOTE—Parenthetical figures after prices indicate number of companies quoting when less than three companies are quoting.

HOW PRICES ARE REPORTED—

Refinery and Seaboard prices in National Petroleum News are gathered by PLATT'S OILGRAM and are as published in the Monday issue of the OILGRAM.

PLATT'S OILGRAM is a reporting service issued in three identical editions daily from News Bureaus at New York, Cleveland, and Tulsa, Okla. PLATT'S OILGRAM gathers and publishes what its publisher and representatives believe to be accurate news of sales, prices and current happenings affecting the oil industry and that will be of interest to its subscribers. As this information is usually private, OILGRAM reports it according to what it is able to obtain from sources deemed reliable.

All information is supplied without guarantee as to its completeness, accuracy, time of transmission or promptness of delivery.

The subscriber receives this information for his private use and not for resale or further distribution.

Publisher reserves the right to change the extent, nature and form of showing this information at any time.

Prices shown in the tables are quotations (meaning sellers' general offers or posted prices), or actual sales prices, reported to OILGRAM by refiners for "open spot" transactions, except as otherwise specified.

Prices arrived at by discounts off a specified price or "market date of shipment," prices named in contracts or prices arrived at in accordance with any arrangement made prior to date of sale, are not for "open spot" transactions and therefore are not considered in making the price tables. Prices made to brokers and prices in "Inter-refinery" transactions are also not considered except as may be noted.

All prices are for "immediate" shipment except in Gulf Coast bulk transactions where shipment is generally to be made in ninety days. Prices are FOB refineries, pipelines, or tanker terminals in districts designated.

Prices shown are for quantities in bulk such as tank car lots, motor transport lots or barge lots; and in cents per gallon; heavy fuel oils are in dollars per barrel of 42 U.S. gallons; wax and petrolatums are in cents per pound. Prices applying to barges or cargoes only are so designated.

Prices do not include taxes or inspection fees. Prices are published at the close of the business day.

Mid-Western prices in the tables were gathered from refiners with offices located in Chicago and the surrounding territory. While the prices are quoted on a Group 3 (Oklahoma) freight basis, this is in accordance with the custom of the oil industry which uses Group 3 as a price basis for the ease of comparing prices even when the material originates in another refining district. Other refinery prices are given by and for the particular refining district where the material is made and from which it is shipped.

When prices obtained by OILGRAM do not conform to these conditions the exception and the new conditions are noted in the news lead or in conjunction with the price table by footnote or otherwise, for the particular refinery or sales district involved.

Crude oil and products covered by OILGRAM'S news and price service, except where noted, have been represented to the publisher as fully up to the customary trade specifications indicated and according to the generally accepted methods of test: and all crude oil and all products thereof as having been lawfully produced and transported.

Any apparent error should be reported to the nearest OILGRAM or National Petroleum News office at once as no correction will be made after the second issue of the OILGRAM or National Petroleum News following its publication.

NOTICE—Owing to great demand, refiners generally limit quotations to regular customers and refuse bids, though higher, from others. Refiners' prices and sales shown; bids reported in market leads.

Summary of Daily Gasoline Prices (Mar. 24 to Mar. 30)

	Monday Mar. 30	Friday Mar. 27	Thursday Mar. 26	Wednesday Mar. 25	Tuesday Mar. 24
U. S. Motor, (ASTM octane)					
78 octane Ethyl:					
Oklahoma	6.25 – 6.875	6.25 – 6.875	6.25 – 6.875	6.25 – 6.875	6.25 – 6.875
Mid-Western (Group 3 basis)	6.375– 6.75	6.375– 6.75	6.375– 6.75	6.375– 6.75	6.375– 6.75
N. Tex. (For shpt. to Tex. & N. M. dest'ns.)	6.375	6.375	6.375	6.375	6.375
W. Tex. (For shpt. to Tex. & N. M. dest'ns.)	6.375 (1)	6.5 (1)	6.5 (1)	6.5 (1)	6.5 (1)
72-74 octane:					
Oklahoma	5.375– 6	5.375– 6	5.375– 6	5.375– 6	5.375– 6
Mid-Western (Group 3 basis)	5.375– 6	5.375– 6	5.375– 6	5.375– 6	5.375– 6
N. Tex. (For shpt. to Tex. & N. M. dest'ns.)	5.375– 6.3	5.375– 6.3	5.375– 6.3	5.375– 6.3	5.375– 6.3
W. Tex. (For shpt. to Tex. & N. M. dest'ns.)	5.375– 5.75	5.5 – 5.75	5.5 – 5.75	5.5 – 5.75	5.5 – 5.75
63-66 octane:					
Oklahoma	5 – 5.625	5 – 5.625	5 – 5.625	5 – 5.625	5 – 5.625
Mid-Western (Group 3 basis)	5 – 5.625	5 – 5.625	5 – 5.625	5 – 5.625	5 – 5.625
N. Tex. (For shpt. to Tex. & N. M. dest'ns.)	5 – 6	5 – 6	5 – 6	5 – 6	5 – 6
W. Tex. (For shpt. to Tex. & N. M. dest'ns.)	5.375 (1)	5.375 (1)	5.375 (1)	5.375 (1)	5.375 (1)
60 octane & below:					
Oklahoma	4.625– 5.25	4.625– 5.25	4.625– 5.25	4.625– 5.25	4.625– 5.25
Mid-Western (Group 3 basis)	4.625– 5.25	4.625– 5.25	4.625– 5.25	4.625– 5.25	4.625– 5.25
N. Tex. (For shpt. to Tex. & N. M. dest'ns.)	4.625– 5.5	4.625– 5.5	4.625– 5.5	4.625– 5.5	4.625– 5.5
W. Tex. (For shpt. to Tex. & N. M. dest'ns.)	4.625– 5	4.75 – 5	4.75 – 5	4.75 – 5	4.75 – 5
Motor Gasoline, 72-74 octane (ASTM)					
New York harbor	8.8	8.8	8.3 – 8.8	8.3	8.3
New York harbor, barges	8.7 – 8.8	8.7 – 8.8	8.2 – 8.8	8.2 – 8.3	8.2 – 8.3
Philadelphia district	8.8	8.8	8.3 – 8.8	8.3	8.3
Baltimore district	8.55	8.55	8.05 – 8.55	8.05	8.05
Motor Gasoline:					
Western Penna. Bradford-Warren:					
Min. 80 Oct. ('39 Research)	No Price	No Price	No Price	No Price	No Price
74-76 Oct. (ASTM)	No Price	No Price	No Price	No Price	No Price
"Q" Gasoline, Min. 70 Oct. (ASTM)	7.75 (2)	7.75 (2)	7.75 (2)	7.75 (2)	7.75 (2)
Western Penna. Other Districts:					
Min. 80 Oct. ('39 Research)	No Price	No Price	No Price	No Price	No Price
74-76 Oct. (ASTM)	No Price	No Price	No Price	No Price	No Price
"Q" Gasoline, Min. 70 Oct. (ASTM)	7 – 7.8	7 – 7.8	7 – 7.8	7 – 7.3	7 – 7.3

REFINERY PRICES

Gasoline—U. S. Motor (ASTM) except where otherwise specified

Prices Effective	Mar. 30	Mar. 23
OKLAHOMA		
78 oct. Ethyl	6.25 – 6.875	6.25 – 6.875
72-74 oct.	5.375– 6	5.375– 6
63-66 oct.	5 – 5.625	5 – 5.625
60 oct. & below	4.625– 5.25	4.625– 5.25
60-62 400 e.p.	4.75 (1)	4.75 (1)
MID-WESTERN (Group 3 basis)		
78 oct. Ethyl	6.375– 6.75	6.375– 6.75
72-74 oct.	5.375– 6	5.375– 6
63-66 oct.	5 – 5.625	5 – 5.625
60 oct. & below	4.625– 5.25	4.625– 5.25
N. TEX. (For shpt. to Tex. & N. M. dest'ns.)		
78 oct. Ethyl	6.375	6.375
72-74 oct.	5.375– 6.3	5.375– 6.3
63-66 oct.	5 – 6	5 – 6
60 oct. & below	4.625– 5.5	4.625– 5.5
60-62, 400 e.p.	4.875 (1)	4.875 (1)
W. TEX. (For shpt. to Tex. & N. M. dest'ns.)		
78 oct. Ethyl	6.375 (1)	6.5 (1)
72-74 oct.	5.375– 5.75	5.5 – 5.75
63-66 oct.	5.375 (1)	5.375 (1)
60 oct. & below	4.625– 5	4.75 – 5
CENT. W. TEX. (Prices to truck transports)		
80 oct. & above	6.875– 7 (2)	6.875– 7 (2)
72-74 oct.	5.875– 6 (2)	5.875– 6 (2)
67-69 oct.	5.375 (1)	5.375 (1)
62 oct. & below	5.125–5.25 (2)	5.125–5.25 (2)
AMARILLO, TEX. (For shpt. to W. Okla. & Tex. differential territory.)		
60 oct. & below	No Price	No Price
60-62, 400 e.p.	No Price	No Price
KANSAS (For Kansas destinations only)		
78 oct. Ethyl	7.125 (1)	7.125 (1)
72-74 oct.	5.875–6.2 (2)	5.875–6.2 (2)
63-66 oct.	5.5 –5.8 (2)	5.5 –5.8 (2)
60 oct. & below	5.125–5.4 (2)	5.125–5.4 (2)

Prices Effective	Mar. 30	Mar. 23
ARK. (For shipment to Ark. & La.)		
72-74 oct., leaded	5.75 (1)	5.75 (1)
70-72 oct. "	5.375 (1)	5.375 (1)
62 oct. "	5 (1)	5 (1)
60 oct. & below, unleaded	4.875 (1)	4.875 (1)
WESTERN PENNA. (Motor gasoline)		
Bradford-Warren:		
Min. 80 oct. ('39 research)	No Price	No Price
74-76 oct. (ASTM)	No Price	No Price
"Q" Gasoline, Min. 70 Oct. (ASTM)	7.75 (2)	7.75 (2)
Other districts:		
Min. 80 oct. ('39 research)	No Price	No Price
74-76 oct. (ASTM)	No Price	No Price
"Q" Gasoline, Min. 70 Oct. (ASTM)	7 – 7.8	7 – 7.3
CENTRAL MICHIGAN (FOB Central Mich. refinery group basis for shpt. within Mich.; shpts. may originate at plants outside Central group)		
U.S. Motor: (Oct. ASTM):		
72-74 oct.	8 – 8.5	8 – 8.5
67-69 oct.	7.5 –7.75 (2)	7.5–7.75 (2)
Str. run gasoline, excluding Detroit shpt.	5 – 5.5	4.75 – 5.5
OHIO (S. O. Ohio quotations for statewide delivery and subject to exceptions for local price disturbances)		
72-74 oct.	8.375	8.375
CALIFORNIA U.S. Motor:		
58-61 grav., 375-400 e.p., 65 oct. & above	5.25 – 8	5.5 – 8
54-58 grav., for outside state shipment	4.5 – 7	4.5 – 7
54-58 grav., for instate shipment	4.5 – 7	4.5 – 7

Kerosine, Gas & Fuel Oils

Prices Effective	Mar. 30	Mar. 23
OKLAHOMA		
41-43 grav. w.w.	4.375– 4.5	4.375– 4.5
42-44 grav. w.w.	4.5	4.5
Range Oil	4 – 4.375	4 – 4.375
No. 1 P.W.	3.875– 4.25	3.875– 4.25
No. 1 straw	3.5 – 4	3.5 – 4
No. 2 straw	3.6 – 4.125	3.6 – 4.125
No. 3 fuel	3.5	3.5
U.G.I. Gas Oil	3.625 (1)	3.625 (1)
No. 6 fuel	$0.85–$0.90 (2)	$0.85–$0.90 (2)
14-16 fuel	$0.95 (1)	$0.95 (1)
MID-WESTERN (Group 3 basis)		
41-43 grav. w.w.	4.375– 4.625	4.375– 4.625
42-44 grav. w.w.	4.5 (2)	4.5 (2)
Range Oil	4 (1)	4 (1)
No. 1 p.w.	3.875– 4.125	3.875– 4.125
No. 2 straw	3.6 – 3.625	3.6 – 3.625
No. 3	3.5	3.5
No. 5	$0.85 (1)	$0.85 (1)
No. 6	$0.85 (2)	$0.85 (2)
N. TEX. (For shpt. to Tex. & N. M. dest'ns.)		
41-43 grav. w.w.	4.25 – 4.75	4.25 – 4.75
No. 1 P.W.	4.2 –4.25 (2)	4.2 –4.25 (2)
AMARILLO, TEX. (For shpt. to W. Okla. & Tex. differential territory.)		
41-43 grav. w.w.	No Price	No Price
No. 1 straw	4.3 (1)	4.3 (1)
KANSAS (For Kansas destinations only)		
41-43 grav. w.w.	No Price	No Price
42-44 gravity w.w.	4.8–4.875 (2)	4.8–4.875 (2)
No. 1 p.w.	4.25–4.3 (2)	4.25–4.3 (2)
No. 6 fuel	$0.90 (1)	$0.90 (1)

REFINERY PRICES (Continued)

(NOTE—Parenthetical figures after prices indicate number of companies quoting when less than three companies are quoting.)

NOTICE—Owing to great demand, refiners generally limit quotations to regular customers and refuse bids, though higher, from others. Refiners' prices and sales shown; bids reported in market leads.

Kerosine, Gas & Fuel Oil

(Continued)

Prices Effective	Mar. 30	Mar. 23
ARK. (For shipment to Ark. and La.)		
41-43 grav. w.w.	4.625 (1)	4.625 (1)
No. 1	4 (1)	4 (1)
No. 2	3.5 (1)	3.5 (1)
No. 3 fuel	3.5 (1)	3.5 (1)
Tractor fuel, for shpt. to Ark. points only	4.875 (1)	4.875 (1)
WESTERN PENNA.		
Bradford-Warren:		
45 grav. w.w.	6.25 – 6.65	6.25
46 grav. w.w.	6.375 (1)	6.375 (1)
No. 1 fuel	6.125– 6.65	6.125– 6.25
No. 2 "	6.125– 6.525	6.125
No. 3 "	6.25–6.65 (2)	6.25 (2)
36-40 gravity	6.25 (2)	6.25 (2)
Other districts:		
45 grav. w.w.	6.125– 6.625	6.125– 6.25
46 grav. w.w.	6.125– 6.625	6.125– 6.25
47 grav. w.w.	6.25 – 6.65	6.25 – 6.375
No. 1 fuel	5.875– 6	5.875
No. 2 "	5.625– 6.025	5.625– 5.875
No. 3 "	5.625– 6.025	5.625– 5.875
36-40 grav., Pittsburgh dist. prices excluded	5.5 – 5.9	5.5 – 5.75

CENTRAL MICHIGAN (FOB Central Mich. refinery group basis for shpt. within Mich.; shpts. may originate at plants outside Central group.)

47-49 gravity w.w.	5.5 – 6	5.5 – 6
P.W. Distillate	5.5	5.5
No. 3 gas oil, Straw.	5 – 5.3	5 – 5.3
U.G.I. gas oil	4.5 (2)	4.5 (2)
Fuel Oils (Vis. at 100).		
300-500 Vis.	4 (2)	4 (2)
100-300 Vis.	4.5 (2)	4.5 (2)

OHIO (S. O. Ohio quotations for statewide delivery)

Kerosine	7	7

CALIFORNIA

40-43 grav. w.w.	4.5 – 6	4.5 – 6
San Joaquin Valley:		
Heavy fuel	$0.75 –$0.85	$0.75 –$0.85
Light fuel	$0.80 –$0.95	$0.80 –$0.95
Diesel fuel	2.75 – 4	2.625– 4
Stove dist.	2.75 – 5	2.625– 5
Los Angeles:		
Heavy fuel	$0.75 –$0.85	$0.75 –$0.85
Light fuel	$0.80 –$0.95	$0.80 –$0.95
Diesel fuel	2.75 – 4	2.625– 4
Stove dist.	2.75 – 5	2.625– 5
San Francisco:		
Heavy fuel	$0.90	$0.90
Light fuel	$1.00	$1.00
Diesel fuel	4.5	4.5
Stove dist.	5.5	5.5

Note: All above heavy fuels meet Pacific specification 400; light fuel, spec. 300; Diesel fuels, spec. 200; and stove distillate, spec. 100.

Lubricating Oils

WESTERN PENNA.

Prices are for sales made, or offers reliably reported, to jobbers & compounders only.

Viscous Neutrals—No. 3 col. Vis. at 70° F.

200 Vis. (180 at 100°) 420-425 fl.		
0 p.t.	40.5 (1)	40.5 (1)
10 p.t.	39.5 (1)	39.5 (1)
15 p.t.	38.5 (1)	38.5 (1)
25 p.t.	33	33
150 Vis. (143 at 100) 400-405 fl.		
0 p.t.	38.5 (1)	38.5 (1)
10 p.t.	37.5 (1)	37.5 (1)
15 p.t.	36.5 (1)	36.5 (1)
25 p.t.	31	31
Cylinder Stocks		
Brt. stk., 145-155 vis. at 210°, 540-550 fl., No. 8 col.		
10 p.t.	30.5 (1)	30.5 (1)
15 p.t.	29.5 (1)	29.5 (1)
25 p.t.	25	25
600 S.R. filterable	15	15
650 S.R.	15.5	15.5
600 fl.	16	16
630 fl.	17	17

MID-CONTINENT (F. o. b. Tulsa)

Neutral Oils (Vis. at 100° F. 0 to 10 P.P.)

Pale Oils:

Vis. Color		
60-85—No. 2	8	8
86-110—No. 2	8.5	8.5
150—No. 3	14.5	14.5
180—No. 3	15	15
200—No. 3	15	15
250—No. 3	16–16.5	16–16.5
280—No. 3	17	17
300—No. 3	18	18

Lubricating Oils (Cont'd)

Prices Effective	Mar. 30	Mar. 23
Red Oils:		
180—No. 5	15 (1)	15 (1)
200—No. 5	15 (1)	15 (1)
280—No. 5	No Price	No Price
300—No. 5	17.5 (2)	17.5 (2)

Note: Viscous Neutrals, 15-25 p.p. generally are quoted 0.5c under 0-10 p.p. oils. Non-viscous oils, 15-25 p.p., generally are quoted 0.25c under 0-10 p.p. oils.

Bright Stock—Vis. at 210°		
200 Vis. D	27 (1)	27 (1)
150-160 Vis. D:		
0 to 10 p.p.	23	23
10 to 25 p.p.	22.5–23	22.5–23
25 to 40 p.p.	23 (1)	23 (1)
150-160 Vis. E	22 (2)	22 (2)
120 Vis. D:		
0 to 10 p.p.	22 (2)	22 (2)
600 S.R. Dark Green	8.5 (1)	8.5 (1)
600 S.R. Olive Green	10–11	10–11
631 S.R.	18.5 (1)	18.5 (1)
Black Oil	5.5 (1)	5.5 (1)

SOUTH TEXAS Neutral Oils

Vis. Color		
Pale Oils: (*Vis. at 100° F.*)		
100 No. 1½-2½	6.5	6.5
200 No. 2-3	8.75	8.75
300 No. 2-3	9.25	9.25
500 No. 2½-3½	10	10
750 No. 3-4	10.25	10.25
1200 No. 3-4	10.375	10.375
2000 No. 4	10.5	10.5
Red Oils:		
100 No. 5-6	6.5 (2)	6.5 (2)
200 No. 5-6	8.75	8.75
300 No. 5-6	9.25	9.25
500 No. 5-6	10	10
750 No. 5-6	10.25	10.25
1200 No. 5-6	10.375	10.375
2000 No. 5-6	10.5–11.5	10.5–11.5

CHICAGO (From Mid-Continent p.l. crude.)

Neutral oils (Vis. at 100° F. 0 to 10 p.p.)

Pale Oils

Vis. Color		
60-85—No. 2	9.5 (1)	9.5 (1)
86-110—No. 2	10 (1)	10 (1)
150—No. 3	15.5 (1)	15.5 (1)
180—No. 3	16 (1)	16 (1)
200—No. 3	16 (1)	16 (1)
250—No. 3	17 (1)	17 (1)
Red Oils:		
180—No. 5	16 (1)	16 (1)
200—No. 5	16 (1)	16 (1)
250—No. 5	17 (1)	17 (1)
280—No. 5	18 (1)	18 (1)
300—No. 5	18.5 (1)	18.5 (1)

Note: Viscous oils, 15 to 30 p.p. are quoted 0.5c lower; 60-85 and 86-110 No. 2 non-viscous oils, 15 to 30 p.p., 0.25c lower.

Unfiltered Steam Refined: (Viscosity at 210°)		
140	11.5 (1)	11.5 (1)
160	12.5 (1)	12.5 (1)
200	13.5 (1)	13.5 (1)
Bright stocks, 160 vis. at 210 No. 8 color:		
0 to 10 p.p.	24 (1)	24 (1)
15 to 25 p.p.	23.5 (1)	23.5 (1)
30 to 40 p.p.	21.5 (1)	21.5 (1)
E filtered Cyl. Stock	15.5 (1)	15.5 (1)

Note: To obtain prices delivered in Chicago, add 0.25c per gal.

Natural Gasoline

(Group 3 & Breckenridge prices are to blenders on freight basis shown below. Shipments may originate in any Mid-Continent manufacturing district.)

FOB GROUP 3

Grade 26-70 ..... 2.25-2.375(Sales) 2–2.25 (Sales)

FOB BRECKENRIDGE

Grade 26-70 ..... 2 (Qtns.) 2 (Qtns.)

CALIFORNIA (FOB plants in Los Angeles basin)

75-85, 350-375 e.p. for blending	4.75 – 5.375	4.75 – 5.375

Naphtha and Solvent

Prices Effective	Mar. 30	Mar. 23
(FOB Group 3)		
Stoddard solvent	6.625	6.625
Cleaners' naphtha	7.125	7.125
V. M. & P. naphtha	7.125	7.125
Mineral spirits	6.125	6.125
Rubber solvent	7.125	7.125
Lacquer diluent	7.375– 8.125	7.375– 8.125
Benzol Diluent	7.875– 8.625	7.875– 8.625
WESTERN PENNA.		
Bradford-Warren District:		
Stoddard Solvent	7.5 (1)	7.5 (1)
Other Districts:		
Untreated naphtha	7 (2)	7 (2)
Stoddard solvent	7.25 – 7.9	7.25 – 7.5

OHIO (S. O. Ohio quotations for statewide delivery): V.M.&P. naphtha, D.C. naphtha, Varnolene & Sohio solvent

	10	10
Rubber solvent	9	9

Wax

White Crude Scale:

WESTERN PENNA. (Bbls. C.L.)		
122-124 A.m.p.	4.25	4.25
124-126 A.m.p.	4.25	4.25

OKLAHOMA (C.L., FOB Refinery)

Semi-refined:

128 AMP min., white, 50 kilo bags	No Price	No Price
132-134 AMP, bbls.	5.25 (1)	5.25 (1)

CHICAGO (FOB Chicago district refinery of one refiner, in bags, carloads. Carloads, slabs loose 0.4c less. Melting points are EMP (ASTM) methods; add 3° to convert into AMP.)

Fully refined:

122-124 (bags only)	5.6	5.6
125-127	6	6
127-129	6.25	6.25
130-132	6.55	6.55
132-134	6.8	6.8
135-137	7.55	7.55

Petrolatums

WESTERN PENNA. (Bbls., carloads; tank cars, 0.5c per lb. less.)

Snow White	6.125– 7.25	6.125– 7.25
Lily White	5.375– 6.125	5.375– 6.125
Cream White	4.375– 5.375	4.375– 5.375
Light Amber	3.375– 3.875	3.375– 3.875
Amber	3.125– 3.625	3.125– 3.625
Red	3 – 3.5	3 – 3.5

Group 3 Freight Rates

To Division Headquarters Points of Standard Oil Co. of Indiana

(Cents Per Gal.)

	Gasoline Kerosine	*Distillate Fuel Oil	Gas Oil and or Residual Fuel Oil
Chicago, Ill.	2.508	2.508	2.516
Decatur, Ill.	2.244	2.244	2.442
Joliet, Ill.	2.508	2.508	2.516
Peoria, Ill.	2.310	2.310	2.442
Quincy, Ill.	2.178	2.178	2.294
Indianapolis, Ind.	2.640	3.034	3.034
Evansville, Ind.	2.442	2.886	2.886
South Bend, Ind.	3.135	3.135	3.330
Detroit, Mich.	4.290	3.996	3.996
Grand Rapids, Mich.	3.828	3.828	3.922
Saginaw, Mich.	4.290	4.144	4.144
Green Bay, Wis.	2.838	2.838	3.182
Milwaukee, Wis.	2.706	2.706	2.738
LaCrosse, Wis.	2.574	2.574	2.886
Minneapolis-St. Paul	2.574	2.574	2.886
Duluth, Minn.	2.838	2.838	3.256
Mankato, Minn.	2.574	2.574	2.886
Des Moines, Ia.	2.046	2.046	2.294
Davenport, Ia.	2.310	2.310	2.442
Mason City, Ia.	2.376	2.376	2.664
St. Louis, Mo.	2.046	2.046	2.072
Kansas City, Mo.	1.518	1.518	1.776
St. Joseph, Mo.	1.518	1.518	1.776
Fargo, N. D.	3.564	3.564	3.996
Huron, S. D.	3.036	3.036	3.330
Wichita			
From Ponca City	0.528	0.528	0.592
From Tulsa	0.858	0.858	0.962
From Cushing	0.792	0.792	0.888

*Not suitable for illuminating purposes.

SEABOARD PRICES EXPORT AND COASTWISE

(NOTE—Parenthetical figures after prices indicate number of companies quoting when less than three companies are quoting.)

NOTICE—Owing to great demand, refiners generally limit quotations to regular customers and refuse bids, though higher, from others. Refiners' prices and sales shown; bids reported in market leads

Atlantic Coast

(Prices are of refiners, FOB their refineries &' their tanker terminals, & of tanker terminal operators FOB their terminals)—Prices Effective Mar. 30

MOTOR GASOLINE

District:	Min. 80 Oct. '39 Research (Max. 2 cc. Lead)	72-74 Oct. (ASTM)	68-70 Oct. (ASTM)
N. Y. Harb.	9.3 – 9.8	8.8	8.8 (1)
N. Y. Harb., barges	9.3 (1)	8.7 – 8.8	8.7 (1)
Albany	8.9 (2)	8.9 –9.1 (2)	....
Philadelphia	9.05 – 9.3	8.8	8.8 (1)
Baltimore	8.55 (2)	8.55	8.45 (1)
Norfolk	8.42 – 8.55	7.875– 8.3	8.1 (2)
Wilmington, N. C.	8.3 – 8.4	7.875– 8.35	8 –8.1 (2)
Charleston	8.4 – 8.55	8.3 (1)	7.7 –8 (2)
Savannah	8 – 8.5 (2)	7.7 – 8	7.6 (1)
Jacksonville	8 – 8.5	7.75 – 8	7.6–7.875 (2)
Miami	8 – 8.5 (2)	....	7.6 (1)
Tampa	7.75 – 8.5	7.5 – 7.875	7.6–7.875 (2)
Pensacola	7.5 (1)	....	7.1 (1)
Mobile	7.37 –7.5 (2)	7 – 7.375 (2)	7.1 (1)
New Orleans	6.75–7.37 (2)	6.25 – 7	....
Portland	9.1 – 9.4	9.1 – 9.4	....
Boston	9 – 9.3	9 – 9.3	9.3 (1)
Providence	9 – 9.3	9 – 9.3	....

FUEL OILS

	KEROSINE and/or NO. 1 FUEL	No. 2	No. 3	No. 5	No. 6
N. Y. Harb.	5.7	5.6	5.6	$1.85-$2.00(2&a)	$1.55
N. Y. Harb., barges	5.6	5.5	5.5	....	....
Albany	5.9	5.7	5.7	$2.15 (1)	$1.75 (1)
Philadelphia	5.8	5.6	5.6	$1.88	$1.55
Baltimore	5.8	5.6	5.6	$1.88 (1)	$1.55
Norfolk	5.4 – 5.8	5.6	5.6 (2)	....	$1.55 (2)
Wilmington, N. C.	5.25 – 5.65	5.6	....	....	....
Charleston	5.8	5.6 (2)	....	....	$1.50 (2)
Savannah	5.25 – 5.65	....	....	....	$1.50 (1)
Jacksonville	5.25 – 5.65	5.15 (2)	5.15 (1)	....	$1.50 (1)
Miami	5.65 (2)	....	....	....	....
Tampa	5.25 – 5.65	5.15 (2)	....	....	$1.45 (1)
Pensacola	4.8 (1)	....	....	....	....
Mobile	4.75	....	....	....	....
New Orleans	4.25 – 4.875	3.75 –3.875 (2)	....	$1.25 (1)	$0.85 (2)
Portland	5.9	5.7	5.7 (2)	$2.15	$1.55 (2)
Boston	5.8	5.6	5.6 (2)	$1.85 (2)	$1.55
Providence	5.8	5.6	5.6	$1.80 –$1.85	$1.55

(a) This price is for a straight-run, low pour test No. 5 fuel.

	Bunker C Fuel Ships' bunkers (Ex Lighterage)	Diesel Oil Ships' bunkers (Ex Lighterage)	Diesel Oil Shore Plants	Gas House Gas Oil 28-34 Gravity
N. Y. Harbor	$1.55	$2.318	5.6 –5.7 (2)	5.7 (2)
Albany	$1.75 (1)	$2.518	5.7 (2)	5.9 (1)
Philadelphia	$1.55	$2.318	....	....
Baltimore	$1.55	$2.318	5.6 (1)	5.6 (1)
Norfolk	$1.55	$2.318	5.6 (1)	5.6 (1)
Charleston	$1.50	$2.318 (2)	5.6 (1)	5.6 (1)
Savannah	$1.50 (1)	$2.158 (1)	....	....
Jacksonville	$1.50 (2)	$2.158-2.163 (2)	....	....
Tampa	$1.45 (2)	$2.158-2.163 (2)	....	....
New Orleans	$0.85	$1.55 (2)	4 (1)	4 (1)
Portland	$1.55 (2)	$2.418	5.7 (1)	5.8 (1)
Boston	$1.55	$2.318	5.6 (2)	5.7 (2)
Providence	$1.55	$2.318 (2)	5.6 (1)	5.7 (1)

Wax

(Melting points are AMP, 3° higher than EMP. Export prices FAS c.l. Domestic prices FOB, in bags, c.l. Scale solid; fully refined slabs.)

Prices Effective Mar. 30

Crude Scale:	New Orleans Export	N. Y. Domestic	N. Y. Export
124-6 Yellow	4.65 (1)	....	4.65 (1)
122-4 White	....	No Price	No Price
124-6 White	4.65 (1)	No Price	4.65 (1)
Fully Refined:			
123-5	5.6 (1)	5.6 (1&a)	5.6 (1)
125-7	5.6 (1)	5.6 (1&a)	5.6 (1)
128-30	6 (1)	6 (2)	6 (1)
130-32	6.25 (1)	6.25 (1)	6.25 (1)
133-5	6.35 (1)	6.35 (2)	6.35 (1)
135-7	6.8 (1)	6.8 (1)	6.8 (1)
108-11 White Match wax (tight bbls.)			No Price

(a) 0.4c discount generally given for slabs loose.

Naphtha

Prices Effective Mar. 30

	V.M.&P. Naphtha	Mineral Spirits
Baltimore	10.5 –11 (2)	9.5 –10
New York Harbor	11 (2)	10
Philadelphia district	11 (2)	10
Boston	11.5 (2)	10.5
Providence	11.5 (1)	10.5 (2)

Pacific Export

(Quotations at seaboard, Los Angeles, cargo lots, except where otherwise noted.)

Prices Effective	Mar. 30	Mar. 23
375 e.p. blend, 70 oct.	6.375– 6.5	6.375– 6.5
390 e.p. blend, 68 oct.	6.25 – 6.375	6.25 – 6.375
390 e.p. blend, 66 oct.	5.875– 6	5.875– 6
400 e.p. blend, 65 oct. min.	5.875– 6	5.875– 6
U. S. Motor, under 65 octane	5.625	5.625
38-40 grav. w.w. kero., 150 fire point	4.5 – 5	4.5 – 5
41-43 grav., w.w. kero.	4.75 – 5	5 – 5.5
44-grav. w.w. kero	5 – 5.5	5 – 5.5
Diesel fuel, 24 & above	$1.25 –$1.30	$1.25 –$1.30
Diesel fuel, under 24	$1.15 –$1.25	$1.15 –$1.25
30-34 grav. diesel (gas oil) Pac. Spec. 200	$1.25 –$1.35	$1.25 –$1.30
Grade C fuel, Pac. Spec. 400	$0.85 –$0.90	$0.85 –$0.90
In Ship's Bunkers, or deep tank lots:		
Diesel fuel, Pac. Spec. 200	$1.35 –$1.45	$1.35 –$1.45
Grade C fuel, Pac. Spec. 400	$0.85 –$0.90	$0.85 –$0.90
Cased Goods: (Per case)		
375-400 e.p. blend, 65 oct. & above	$1.50 –$1.60	$1.50 –$1.60
400 e.p. blend, under 65 oct.	$1.40 –$1.50	$1.40 –$1.50
U. S. Motor	$1.35 –$1.45	$1.35 –$1.45
40-43 grav. w.w. kero., 150 fire point	$1.30 –$1.40	$1.30 –$1.40
Kero., p.w.	$1.25 –$1.35	$1.25 –$1.35

Tanker Rates

(Approximate last paid rates, cents per bbl; Gulf-N. Atlantic, not East of N. Y.)

Hvy. Crude & Fuel (10 to 19.9 gravity)	48
Light Crude, (30 grav. or Lighter)	43
Gasoline	40
Kerosine	40
No. 2 Fuel	42

Note: 37½% *surcharge permitted on above rates by Maritime Commission "to cover increased wartime operating expenses."*

Gulf Coast

(Prices for sales made or firm offers reliably reported for sales pending in cargoes FOB ship at Gulf, for minimum of 20,000 bbls. Prices are by refiners only to other refiners, export agents, or to large tanker terminal operators at the customary trade specifications noted.)

Prices Effective Mar. 30

Domestic

Motor Gasoline	
Min. 80 oct. '39 Research, max. 2cc lead	No Price
60-62 Gravity, Max. 400 e.p.	
72-74 oct. leaded (ASTM)	5.25 – 6
70 oct. unleaded "	5.5 – 5.75
68 oct. " "	5.5 – 6.25
65 oct. " "	5.25 – 5.75
60 oct " "	5
41-43 w.w. kerosine	3.875– 4.375
No. 2 fuel	3.75 – 4
Gas Oil—Less than ½ of 1% sulfur.	
Below 43 diesel index	4
43-47 " "	4
48-52 " "	4
53-57 " "	4.125
58 & above diesel index	4.25
Diesel Oil, ship's bunkers (ex-lighterage)	$1.55–$1.68
Bunker C, " " "	$0.85–$0.95
Bunker C, cargoes	$0.85

Export

Motor Gasoline	
60-62 Gravity, Max. 400 e.p.	
72-74 oct. leaded (ASTM)	5.25 – 6
70 oct. unleaded "	5.5 – 5.75
68 oct. " "	5.5 – 6.25
65 oct. " "	5.25 – 5.75
60 oct. " "	5
41-43 w.w. kerosine	3.875– 4.375
Gas Oil—Less than ½ of 1% sulfur.	
Below 43 diesel index	4
43-47 " "	4
48-52 " "	4
53-57 " "	4.125
58 & above diesel index	4.25

MID-CONTINENT LUBES

(At Gulf; in packages, FAS.; in bulk, FOB terminals)

	Mar. 30 Steel Drums	Mar. 30 Bulk
200 vis. D 210 brt. stock	34–35 (2)	28.8 (2)
150 vis. D 210 brt. stock 0-10 p.p.	30–31 (2)	24.8 (2)
10-25 p.p.	29.5 (1)	24.3 (1)
100 vis. D 210 brt. stock 0-10 p.p.	29.5 (1)	24.3 (1)
10-25 p.p.	29 (1)	23.8 (1)
200 vis. No. 3 col. neutral: 0-10 p.p.	22 (1)	16.8 (1)

SOUTH TEXAS LUBES

(Vis. at 100°, c. t. 0, blk. exprt. shp., FOB terminals)

Unfiltered Pale Oils: Vis.	Color	Mar. 30	Mar. 23
100	No. 3	6.25 (1)	6.25 (1)
200	No. 3	7.75 (1)	7.75 (1)
300	No. 3	8.25 (1)	8.25 (1)
500	No. 3½	9.25 (1)	9.25 (1)
750	No. 4	9.75 (1)	9.75 (1)
1200	No. 4	10.25 (1)	10.25 (1)
2000	No. 4	....	....
Red Oils:			
Vis.	Color		
100	No. 5-6	....	....
200	No. 5-6	7.75 (1)	7.75 (1)
300	No. 5-6	8.25 (1)	8.25 (1)
500	No. 5-6	9.25 (1)	9.25 (1)
750	No. 5-6	9.75 (1)	9.75 (1)
1200	No. 5-6	10.25 (1)	10.25 (1)
2000	No. 5-6	11 (1)	11 (1)

TANK WAGON PRICES

Commercial or consumer tank car, tank wagon, dealer, and service station prices for gasoline **do not include taxes;** *they do, however, include inspection fees as shown in general footnote. Gasoline taxes, shown in separate column, include 1.5c federal, and state taxes; also city and county taxes as indicated in footnotes. Kerosine tank wagon prices also do not include taxes; kerosine taxes where levied are indicated in footnotes. Dealer discounts are shown in footnotes. These prices in effect Mar. 30, 1942 as posted by principal marketing companies at their headquarters offices, but subject to later correction.*

S. O. New Jersey

Esso (*Regular Grade*)

	Consumer Tank Wagon	Dealer T.W.	Gasoline Taxes	Kerosine T.W.
*Atlantic City, N. J	9.3	9.8	4.5	7.9
*Newark, N. J	9.3	9.8	4.5	7.9
Annapolis, Md	9.65	10.15	5.5	9.7
Baltimore, Md	9.05	9.55	5.5	8.7
Cumberland, Md	10.45	10.95	5.5	10.2
Washington, D. C	9.3	9.8	4.5	9.2
Danville, Va	10.75	11.25	6.5	10.45
Norfolk, Va	9.55	10.05	6.5	10.2
Petersburg, Va	9.85	10.35	6.5	11.2
Richmond, Va	9.85	10.35	6.5	11.2
Roanoke, Va	11.05	11.55	6.5	10.7
Charleston, W. Va	11.35	11.85	6.5	11.5
Parkersburg, W. Va	10.65	11.15	6.5	11.2
Wheeling, W. Va	10.65	11.15	6.5	11.8
Charlotte, N. C	11.2	11.7	7.5	9.5
Hickory, N. C	11.75	12.25	7.5	10.5
Mt. Airy, N. C	11.6	12.1	7.5	9.7
Raleigh, N. C	10.95	11.45	7.5	10.5
Salisbury, N. C	11.25	11.75	7.5	10.9
Charleston, S. C	10.05	10.55	7.5	....
Columbia, S. C	10.9	11.4	7.5	....
Spartanburg, S. C	11.6	12.1	7.5	....

	Mineral Spirits T.W.	V.M.&P. T.W.
Newark, N. J	12.5	14
Baltimore, Md	15	..
Washington, D. C	15	..

Fuel Oils—T.W	No. 1	No. 2	No. 3
Atlantic City, N. J	7.9	7.2	7.2
Newark	7.9	7.2	7.2
Annapolis, Md	...	7.45	...
Baltimore	7.7	7.2	7.2
Washington, D. C	8.2	7.6	7.6
Norfolk, Va	7.9	7	7
Petersburg	8.2	7.2	...
Richmond	8.2	7.2	7.2
Charlotte, N. C	8.5	8.6	...
Hickory	...	8.2	...
Raleigh	9.5	8.3	...
Charleston, S. C	...	7.2	...
Columbia	...	8.2	...
Spartanburg	...	9	...

*Effective Jan. 23, '42, minimum retail resale price of 13.3c posted thru New Jersey.

Discounts:

Esso gasoline—to undivided dealers, 0.5c off dealer t.w.

Kerosine—1c off t.w. price for 25 gals. or more, under contract thru territory (Baltimore city contract not necessary) except no discount in state of New Jersey.

Naphthas—To buyers taking following quantities at one time: Newark, 2c per gal. on 200 gals. or more, less than 200 gals. 0.5c higher price; Baltimore, 2c off on 25 to 100 gals. and 3c on over 100 gals.; Washington, 2c off to contract buyers.

Socony-Vacuum Oil Co., Inc.

Socony Mobilgas (*Regular Grade*)

	Com. Cons. T.W.	Undiv. Dlr. T.W.	Gasoline Taxes
New York City			
Manhattan & Bronx	9.7	10.2	*5.5
Kings & Queens	9.7	10.2	*5.5
Richmond	9.3	9.8	*5.5
Albany, N. Y	9.5	10	5.5
Binghamton, N. Y	10.6	11.1	5.5
Buffalo, N. Y	9.8	10.3	5.5
Jamestown, N. Y	10	10.5	5.5
Mt. Vernon, N. Y	9.7	10.2	5.5
Plattsburg, N. Y	10.6	11.1	5.5
Rochester, N. Y	10.4	10.9	5.5
Syracuse, N. Y	10.1	10.6	5.5
Bridgeport, Conn	9.6	10.1	4.5
Danbury, Conn	10.1	10.6	4.5
Hartford, Conn	10.2	10.7	4.5
New Haven, Conn	9.6	10.1	4.5
Bangor, Me	10.3	10.8	5.5
Portland, Me	9.9	10.4	5.5
Boston, Mass	9.5	10	4.5
Concord, N. H	11	11.5	5.5
Lancaster, N. H	11.6	12.1	5.5
Manchester, N. H	10.9	11.4	5.5
Providence, R. I	9.6	10.1	4.5
Burlington, Vt	10.5	11	5.5
Rutland, Vt	10.6	11.1	5.5

	Mineral Spirits T.W.	V.M.&P. T.W.
Buffalo, N. Y	12.4	13.6
New York City	11	12
Rochester, N. Y	13.2	14.4
Syracuse, N. Y	14	....
Boston, Mass	12	13
Bridgeport, Conn	†16.3	†17.3
Hartford, Conn	†16.3	†17.3
Providence, R. I	13	14

	Kerosine Yard	Kerosine TW	Mobilfuel Diesel TC	Mobilfuel Diesel TW	Mobilheat Fuel Yard	Mobilheat Fuel TW
New York:						
Manhat'n & Bronx	6	8.4	...	7.9	5.9	7.6
Kings & Queens	6	8.4	...	7.9	5.9	7.6
Richmond	5.9	8.4	...	...	5.8	7.4
Albany	6.1	8.1	5.9	7.9	5.9	7.6
Binghamton	7.5	9.5	...	9.3	7.3	8.8
Buffalo	7.2	9.2	7.1	9.1	7.1	8.6
Jamestown	7.3	9.3	...	9.2	7.2	8.6
Mt. Vernon	6.1	8.6	...	8	6	7.6
Plattsburg	6.7	8.7	...	8.5	6.5	8
Rochester	7.3	9.3	6.8	8.8	6.8	8.3
Syracuse	7.1	9.1	6.7	8.7	6.7	8.2
Conn.:						
Bridgeport	6.2	...	...	...	6.1	7.4
Danbury	6.7	...	...	...	6.4	7.4
Hartford	6.3	...	...	8.1	6.1	7.6
New Haven	6	...	...	7.9	5.9	7.5
Maine:						
Bangor	6.5	8.5	6.3	8.3	6.3	7.7
Portland	6.1	8.5	5.9	7.9	5.9	7.6
Mass.:						
Boston	6.2	8.4	5.8	7.8	6	7.6
N. H.:						
Concord	7	9	...	...	7.1	8.6
Lancaster	8.1	10.1	...	...	8.1	9.6
Manchester	7.1	9.4	...	...	6.8	8.3
R. I.:						
Providence	6.2	8.2	5.8	7.8	6	7.8
Vermont:						
Burlington	6.7	...	6.5	8.5	6.4	7.8
Rutland	6.9	...	...	8.6	6.6	8.1

*Does not include 1% city sales tax applicable to price of gasoline (ex tax).

†In steel barrels.

Discounts: Diesel—On t.w. deliveries, 0.5c for at least 400 gals.; 1c for full tank truck.

Atlantic Refining

Atlantic White Flash Gasoline (*Regular Grade*)

	Commercial T.W	Dealer T.W.	Gasoline Taxes	Kerosine T.W.
Philadelphia, Pa	9.8	10.3	5.5	10.55
Pittsburgh	10.3	10.8	5.5	10.9
Allentown	10.3	10.8	5.5	10.9
Erie	10.3	10.8	5.5	10.9
Scranton	10.3	10.8	5.5	10.9
Altoona	10.3	10.8	5.5	10.9
Emporium	10.3	10.8	5.5	10.9
Indiana	10.3	10.8	5.5	10.9
Uniontown	10.3	10.8	5.5	10.9
Harrisburg	10.3	10.8	5.5	10.9
Williamsport	10.3	10.8	5.5	10.9
Dover, Del	...	10.8	5.5	10.9
Wilmington, Del	...	10.3	5.5	10.4
Boston, Mass	...	10.5	4.5	8.4
Springfield, Mass	...	11.4	4.5	9.3
Worcester, Mass	...	11.1	4.5	8.9
Fall River, Mass	...	10.6	4.5	9.4
Hartford, Conn	...	11.2	4.5	8.3
New Haven, Conn	...	10.6	4.5	9.4
Providence, R. I	...	10.6	4.5	9
Atlantic City, N. J	...	10.3	4.5	8.3
Camden, N. J	...	10.3	4.5	8.3
Trenton, N. J	...	10.3	4.5	8.3
Annapolis, Md	...	10.65	5.5	9.1
Baltimore, Md	...	10.05	5.5	8.1
Hagerstown, Md	...	11.15	5.5	8.6
Richmond, Va	...	10.85	6.5	10.6
Wilmington, N. C	...	11.15	7.5	10.2
Brunswick, Ga	...	10	7.5	*9
Jacksonville, Fla	...	9	8.5	10

	Mineral Spirits T.W.†	V.M.&P. T.W.†
Philadelphia, Pa	11	12.5
Lancaster, Pa	12	13.5
Pittsburgh, Pa	12.5	12.5

	Fuel Oils—T.W. 1	2	3	5	6
Phila., Pa	8.4	7.6	7.6	5.2	4.2
Allentown, Pa	8.9	7.9	7.9	...	...
Wilmington, Del	8.4	7.6	7.6	...	...
Springfield, Mass	9.3	8	8	...	...
Worcester, Mass	8.9	7.9	7.9	...	...
Hartford, Conn	8.3	7.6	7.6	...	...

*Does not include 1c Georgia kerosine tax.

†Mineral Spirits prices also apply to Stoddard Solvent; V.M.&P. prices also apply to Light Cleaners Naphtha.

Discounts:

Gasoline—to undivided dealers, 0.5c off dealer t.w., except Georgia & Florida dealer t.w. and undivided dealer t.w. prices are same.

Kerosine—Thru Penna. & Delaware, 2c off t.w. price on t.w. deliveries of 25 gals. or more at one time.

S. O. Ohio††

***Sohio X-70 Gasoline (*Regular Grade*)**

	Consumer T.W.	**Reselers	‡S.S.	Gasoline Taxes	†Kerosine T.W.
Ohio, Statewide	12	10	13.5	5.5	9
Akron	12	9.5	12.5	5.5	9
Cincinnati	12	9.5	12.5	5.5	9
Cleveland	12	9.5	12.5	5.5	9
Columbus	12	9.5	12.5	5.5	9
Dayton	12	9.5	12.5	5.5	9
Marietta	12	9.5	12.5	5.5	9
Portsmouth	12	9.5	12.5	5.5	9
Toledo	12	9.5	12.5	5.5	9
Youngstown	12	9.5	12.5	5.5	9

Aviation Gasoline—Statewide

	Consumer T.W.	Gasoline Taxes
Sohio Aviation	14.5	5.5
Esso Ethyl Aviation 73 Oct.	15.5	5.5
Esso Ethyl Aviation 80 Oct.	16.5	5.5
Esso Ethyl Aviation 91 Oct.	17.5	5.5
Esso Ethyl Aviation 100 Oct.	24.5	5.5

	†Naphtha—T.W. Statewide	Lucas County
S. R. Solvent	13.5	13.5
D. C. Naphtha	14.5	14.25
V.M.&P. Naphtha	14.5	14.25
Varnolene	14.5	14.25
Sohio Solvent	14.5	14.25

Fuel Oils—T.W.	No. 1	No. 2	No. 3	No. 4
Ohio, Statewide	8	8	7.5	....
Cleveland	10	10	9.5	7.25

*Renown (third-grade) prices are same as X-70 unless otherwise noted.

**Except authorized agents.

†Kerosine prices are ex 1c state tax. Naphtha prices are ex 1.5c federal & 4c state tax.

‡Prices at company-operated stations.

††Statewide prices are subject to exceptions other than those shown.

Discounts:

Esso aviation—on contract to hangar operators and resellers, 2c off consumer t.w.

Fuel oils—Statewide prices are for t.w. & drum deliveries of 50 gals. or more; prices for deliveries of less than 50 gals. are 0.5c higher. Cleveland Nos. 1, 2, and 3 prices are for bulk deliveries of 5 to 99 gals.; 100 gals. and over are 2c less. Cleveland No. 4 price is for full compartment hose dump only.

Naphthas—to contract consumers off t.w. prices—Statewide: 300 to 999 gals., 0.5c; 1000 to 2499 gals., 0.75c; 2500 to 4999 gals., 1c; 5000 or more gals., 1.5c. Lucas County: Less than 50 gals., tank wagon price; 50 to 249 gals., 0.5c; 250 to 499 gals., 1c; 500 gals. or over, 1.5c.

S. O. Kentucky

Crown Gasoline (*Regular*)
Standard (*Third Grade*)

	†Net Dealer Crown	Standard	Gasoline Taxes	Kerosine T.W.
Covington, Ky	9.5	8.5	6.5	9
Lexington, Ky	11	8.5	5.5	9
Louisville, Ky	10.5	9.5	6.5	8.5
Paducah, Ky	8	8	6.5	8.5
Jackson, Miss	10.5	9.5	7.5	*8.5
Vicksburg, Miss	10	9	7.5	*8
Birmingham, Ala	10.5	9.5	*8.5	9
Mobile, Ala	9.5	7.5	*9.5	8.5
Montgomery, Ala	10.5	9.5	*9.5	*9
Atlanta, Ga	10	...	7.5	*9
Augusta, Ga	11	...	7.5	*8.5
Macon, Ga	11	...	7.5	*8.5
Savannah, Ga	10	...	7.5	*8
Jacksonville, Fla	10	9	8.5	8
Miami, Fla	10	9	8.5	8
Pensacola, Fla	9.5	8.5	*9.5	8
Tampa, Fla	10	...	8.5	8

*Taxes: In tax column are included these city and county gasoline taxes: Mobile, 2c city; Birmingham, 1c city; Montgomery, 1c city and 1c county; Pensacola, 1c city. Georgia and Montgomery, Ala. have 1c kerosine tax, Mississippi 0.5c, not included in above prices.

†Consumer t.w. prices are same as net dealer prices.

S. O. Indiana

Red Crown (*Regular Grade*)
Blue Crown (*Third Grade*)

Dealer Prices

	Red Crown Cons. T.W.	Red Crown	Blue Crown	Gasoline Taxes	Kerosine T.W.
Chicago, Ill	11.6	9.6	8.5	4.5	10.3
Decatur, Ill	10.9	8.9	8	4.5	9.5
Joliet, Ill	11.9	9.6	8.5	4.5	10.3

(Continued on next page)

Above prices include these inspection fees on both gasoline and kerosine unless otherwise specified, per gallon:
Alabama 1/40c on gasoline, 1/2c on kerosine; Arkansas 1/20c; Florida 1/8c; Illinois 3/100c; Indiana 1/5c in lots of 25 bbls. or less, 2/25c in lots of more than 24 bbls.; Kansas 1/50c; Louisiana 1/32c; Minnesota 7/200c; Missouri 1/50c; Nebraska 3/100c; Nevada, gasoline 1/20c; North Carolina 1/4c; North Dakota 1/20c; Oklahoma 2/25c; South Carolina 1/8c; South Dakota 1/20c; Tennessee 2/5c; and Wisconsin 3/100c.
Kerosine inspection fees only: Iowa 3/50c; Michigan 1/5c per gal.

TANK WAGON PRICES

Commercial or consumer tank car, tank wagon, dealer, and service station prices for gasoline **do not include taxes;** *they do, however, include inspection fees as shown in general footnote. Gasoline taxes, shown in separate column, include 1.5c federal, and state taxes; also city and county taxes as indicated in footnotes. Kerosine tank wagon prices also do not include taxes; kerosine taxes where levied are indicated in footnotes. Dealer discounts are shown in footnotes. These prices in effect Mar. 30, 1942 as posted by principal marketing companies at their headquarters offices, but subject to later correction.*

S. O. Indiana (Cont'd)

Red Crown (*Regular Grade*)
Blue Crown (*Third Grade*)

Dealer Prices

	Red Crown Cons. T.W.	Red Crown	Blue Crown	Gaso-line Taxes	Kero-sine T.W.
Peoria, Ill	10.7	9.2	9.1	4.5	10.1
Quincy, Ill	8.9	7.9	7.9	4.5	10
Indianapolis, Ind	11.6	9.7	9.6	5.5	*9.8
Evansville, Ind	11.4	9.9	7.9	5.5	*9.6
South Bend, Ind	12	10.5	10	5.5	*10.2
Detroit, Mich	11.4	9.9	9.4	4.5	9.6
Grand Rapids, Mich	11.4	9.3	9	4.5	9.6
Saginaw, Mich	11.4	9.9	9.4	4.5	9.6
Green Bay, Wis	12.2	10.7	9.7	5.5	10.6
Milwaukee, Wis	12.1	10.6	10.1	5.5	10.5
La Crosse, Wis	11.9	10.4	9.9	5.5	10.3
Minneapolis-St. Paul	11.9	9.9	9.5	5.5	10.3
Duluth, Minn	12.2	10.7	10.2	5.5	10.6
Mankato, Minn	11.9	10.4	9.5	5.5	10.3
Des Moines, Ia	11.4	9.9	9.4	4.5	*9.8
Davenport, Ia	11.7	10.2	9.7	4.5	*10.1
Mason City, Ia	11.7	10.2	9.7	4.5	*10.1
St. Louis, Mo	10.3	8.8	8.6	*4.5	9.8
Kansas City, Mo	10.4	8.9	7.9	*4.5	9.4
St. Joseph, Mo	11	9	8	*4.5	9.6
Fargo, N. D	12.9	11.4	10.5	5.5	11.3
Huron, S. D	12.3	10.8	10.3	5.5	10.7
Wichita, Kans	10.3	8.2	6.5	4.5	8

Stanavo Aviation 73 Octane

Chicago, Ill	15.7	4.5
Milwaukee, Wis	15.9	5.5
Minneapolis, Minn	15.7	5.5
St. Louis, Mo	15.2	*4.5
Kansas City, Mo	14.8	*4.5
Fargo, N. D	16.7	5.5
Huron, S. D	16.1	5.5

	Oleum Spirits	V.M.&P. Naphtha	Stani-sol	*Taxes
(Prices are base prices before discounts)				
Chicago	13.5	13.8	12.8	4.5
Detroit	15.8	15	16.3	4.5
K. C., Mo	13.3	14.3	13.8	1.5
St. Louis, Mo	13.7	14.7	13.2	1.5
Milwaukee	14.4	15.4	14.9	5.5
Minneap'ls	14.2	15.2	13.5	5.5

Fuel Oils T. W.

Chicago	Standard	Heater Oil
1-99 gals		9
100-149 gals		8
150 gals. & over		7.5

	Stanolex Fuel Oil No. 1	Stanolex Furnace Oil
1-99 gals	8.5	8.5
100-149 gals	7.5	7.5
150-399 gals	7.5	7.5
400 gals. & over	7	7

	Stanolex Fuel Oil A	Stanolex Fuel Oil B
1-99 gals	8	8
100-399 gals	7	7
400-749 gals	6	6
750 gals. & over	5.25	5.25

Stanolex Bunker C Fuel Oil

1-399 gals	6.5
400-999 gals	5.5
1000 gals. & over	4.5

Other Points: Indianapolis	Stanolex No. 1	Stanolex Furnace Oil
1-99 gals	....	*8.7
100 gals. & over	....	*7.7
Detroit		
1-99 gals	....	7.8
100 gals. & over	....	6.8
Milwaukee		
1-99 gals	....	8.7
100 gals. & over	....	7.7
Minneapolis		
1-99 gals	....	8.5
100 gals. & over	....	7.5
St. Louis		
1-99 gals	8.3	7.8
100 gals. & over	7.3	6.8
Kansas City		
1-99 gals	....	7.6
100 gals. & over	....	6.6

*Taxes: In gasoline tax column are included these city taxes—Kansas City, St. Joseph, and St. Louis, 1c. Indiana kerosine and fuel oil prices are ex 4c state tax; Iowa kerosine prices are ex 3c state tax. In naphtha tax column are included 1.5c federal tax and state taxes.

S. O. Nebraska

(*Regular Grade*)

	T.W. Dealer	Gaso-line Taxes	Kero-sine T.W.
Omaha	11.4 8.9	6.5	9.8
McCook	12 9.4	6.5	9.5
Norfolk	11.9 10.4	6.5	10.3
North Platte	11 9.9	6.5	10
Scottsbluff	12.4 9.5	6.5	9.5

S. O. Louisiana

Esso Gasoline (*Regular Grade*)

	Consumer Tank Wagon	Dealer T.W.	Gaso-line Taxes	Kero-sine T.W.
New Orleans, La	8.75	9.25	8.5	*9
Baton Rouge, La	8.75	9.25	8.5	*9.5
Alexandria, La	8.75	9.25	8.5	*9.5
Lafayette, La	9	9.5	8.5	*9
Lake Charles, La	9	9.5	8.5	*11
Shreveport, La	8.5	9	8.5	*8
Knoxville, Tenn	11.5	12	8.5	12.5
Memphis, Tenn	8.75	9.25	8.5	10.5
Chattanooga, Tenn	10.5	11	8.5	11
Nashville, Tenn	10.5	11	8.5	10
Bristol, Tenn	9.75	10.25	8.5	12
Little Rock, Ark	9.5	10	8	10

*Louisiana kerosine prices are ex 1c state tax.

Discounts:

Esso Gasoline—To undivided dealers, 0.5c off dealer t.w.

Humble Oil & Refining Co.

Humble Motor Fuel (*Regular Grade*)
Thriftane (*Third Grade*)

	Humble *Tank Wagon	Re-tail	Thriftane *Tank Wagon	Re-tail	Gaso-line Taxes
Dallas, Tex	8.5†	10.5	7.5†	8.5	5.5
Ft. Worth, Tex	8.5††	10.5	7.5‡	9	5.5
Houston, Tex	8.5	12.5	7.5	10.5	5.5
San Antonio, Tex	8.5	12.5	7.5	10.5	5.5

	Kerosine *Tank Wagon	Retail
Dallas, Tex	7	11
Ft. Worth, Tex	7	11
Houston, Tex	8	11
San Antonio, Tex	7	10

74 Oct. Aviation Gasoline, Clear	Tank Car
FOB Baytown, Tex	8.5

*To all classes of dealers & consumers.
†Less 1c allowance to dealers only.
‡Less 1½c allowance to dealers only.
††Less 2c allowance to dealers only.

The Texas Co.

	Gasoline—Dealer Fire-Chief (*Regular*)	T.W. Indian (*3rd Grade*)	Gaso-line Taxes
Dallas, Tex	8.5*	7.5*	5.5
Ft. Worth, Tex	8.5*	7.5*	5.5
Wichita Falls, Tex	8.5	7.5	5.5
Amarillo, Tex	8.5	7.5	5.5
Tyler, Tex	8.5*	7.5*	5.5
El Paso, Tex	9.5	8.5	5.5
San Angelo, Tex	8.5	7.5	5.5
Waco, Tex	8.5*	7*	5.5
Austin, Tex	8.5	7.5	5.5
Houston, Tex	8.5	7.5	5.5
San Antonio, Tex	8.5	7.5	5.5
Port Arthur, Tex	8.5	7.5	5.5

*Less 1c temporary allowance to all dealers.

Continental Oil Co.

	Conoco Bronz-z-z (*Regular*) †Tank	De-mand (*3rd Grade*) Wagon	Gaso-line Taxes	Kero-sine T.W.
Denver, Col	10	9	5.5	9.5
Grand Junction, Col	12	11	5.5	12
Pueblo, Col	8.5	7.5	5.5	9.5
Casper, Wyo	11.5	10.5	5.5	12
Cheyenne, Wyo	10	9	5.5	9
Billings, Mont	12	11	6.5	12.5
Butte, Mont	11.5	10.5	6.5	13.5
Great Falls, Mont	12	11	6.5	12.5
Helena, Mont	12	11	6.5	13
Salt Lake City, Utah	13.5	12.5	5.5	14.5
Boise, Ida	13.6	12.6	6.5	16.5
Twin Falls, Ida	14.6	13.6	6.5	17
Albuquerque, N. M	10.5	9.5	*7	10
Roswell, N. M	10	9	*7	8.5
Santa Fe, N. M	10.5	9.5	*7.5	10
Ft. Smith, Ark	9	6.25	*7	8
Little Rock, Ark	9.5	7	8	8
Texarkana, Ark	9	7.5	*5.5	7
Muskogee, Okla	7.75	6.75	7	8
Oklahoma City, Okla	7	6	7	8
Tulsa, Okla	8	7	7	8

*Taxes: In gasoline tax column are included these city taxes—Albuquerque, & Roswell, 0.5c; Santa Fe, 1c. Texas 4c state tax applies within city limits of Texarkana, Ark.; Okla. 5.5c state applies within city limits of Ft. Smith, Ark.

†To consumers & dealers.

Discounts: To dealers only—Cheyenne 1.5c on Bronz-z-z & Demand.

S. O. California

Standard Gasoline (*Regular Grade*)
Flight Gasoline (*Third Grade*)

	Standard Posted Net Tank Truck	Standard Posted Re-tail	Flight Posted Net Tank Truck	Flight Posted Re-tail	Gaso-line Taxes
San Francisco, Cal	10	14	9	12	4.5
Los Angeles, Cal	9.5	13.5	8.5	11.5	4.5
Fresno, Cal	11	15	10	13	4.5
Phoenix, Ariz	12	16	10	13	6.5
Reno, Nev	12	16	11	14	5.5
Portland, Ore	10.5	14.5	9.5	12.5	6.5
Seattle, Wash	10.5	14.5	9.5	12.5	6.5
Spokane, Wash	12.5	16.5	11.5	14.5	6.5
Tacoma, Wash	10.5	14.5	9.5	12.5	6.5

Std. Aviation 73

	Posted Net Tank Truck	Gasoline Taxes	Kerosine Tank Truck
San Francisco, Cal	12.5	4.5	11.5
Los Angeles, Cal	12	4.5	10
Fresno, Cal	13.5	4.5	12.5
Phoenix, Ariz	14.5	6.5	12.5
Reno, Nev	14.5	5.5	13.5
Portland, Ore	13	6.5	13.5
Seattle, Wash	13	6.5	13.5
Spokane, Wash	16	6.5	16.5
Tacoma, Wash	13	6.5	13.5

Discounts:

Resale & Commercial: T.C. deliveries 0.25c per gal. off posted net tank truck.

Commercial: Retail deliveries, and/or tank truck deliveries of less than 40 gals., 4c per gal. above posted net tank truck price for Standard Aviation and Standard Gasoline, and 3c per gal. above posted net tank truck for Flight Gasoline, except single deliveries of less than 40 gals. to Marine trade only, which are billed at posted net tank truck price.

Canada

PRICES ON IMPERIAL OIL, LTD.

Per Imperial Gallon, which is 1.2 U. S. Gallons

3-Star Imperial Gasoline (*Regular Grade*)

	†Gasoline T.W.	*Gasoline Taxes	†Kero-sine T.W.
Hamilton, Ont	17.5	11	18
Toronto, Ont	17.5	11	18
Brandon, Man	21	10	23
Winnipeg, Man	20.5	10	22.5
Regina, Sask	18	10	20
Saskatoon, Sask	20.8	10	22.8
Edmonton, Alta	18.9	10	20.9
Calgary, Alta	16	10	18
Vancouver, B. C	15	10	24
Montreal, Que	17	11	17.5
St. John, N. B	16.5	13	19
Halifax, N. S	16.5	13	19

*Includes 3c Federal, and Provincial taxes.
†To divided & undivided dealers.

Tank Wagon Price Changes

(These changes have been made in price tables)

Socony-Vacuum—Mobilgas:

Dealer & t. w. up 0.5c at all points Mar. 27.

Socony-Vacuum—Kerosine & Fuel Oils:

Yard & t. w. up 0.4c at all points Mar. 27.

Atlantic Refining—White Flash Gasoline:

Dealer & t. w. up 0.5c at all Pennsylvania points Mar. 27. Dealer up 0.5c at all other points except Brunswick & Jacksonville Mar. 27.

Atlantic Refining—Kerosine & Fuel Oils:

All points except Brunswick & Jacksonville up 0.4c Mar. 27.

Above prices include these inspection fees on both gasoline and kerosine unless otherwise specified, per gallon:
Alabama 1/40c on gasoline, 1/2c on kerosine; Arkansas 1/20c; Florida 1/8c; Illinois 3/100c; Indiana 1/5c in lots of 25 bbls. or less, 2/25c in lots of more than 25 bbls.; Kansas 1/50c; Louisiana 1/32c; Minnesota 7/200c; Missouri 1/50c; Nebraska 3/100c; Nevada, gasoline 1/20c; North Carolina 1/4c; North Dakota 1/20c; Oklahoma 2/25c; South Carolina 1/8c; South Dakota 1/20c; Tennessee 2/5c; and Wisconsin 3/100c.
Kerosine inspection fees only: Iowa 3/50c; Michigan 1/5c per gal.

CRUDE OIL PRICES

Prices in $ per bbl. of 42 U. S. gals. at the well. A. P. I. gravity. Prices are effective as of 7 a. m. of dates shown.

EASTERN & CENTRAL STATES FIELDS

PENNSYLVANIA GRADE

Posted by Jos. Seep Purch. Agency (Mar. 26, '42)

Bradford-Allegany	$3.00
Southwest Penna.	$2.65
Eureka (West Va.)	$2.59
Corning, O. (May 27, '41)	$1.31

Posted by The Pennzoil Co. (Mar. 26, '41)

National Transit	$2.93*

Posted by Valvoline Pipe Lines (Mar. 26, '42)

Bradford (Elk & McKean Counties, Pa.)	$3.00
Warren, Forest, Venango, Clarion & Butler Counties, Pa.	$2.93
Alleghany, Beaver, Washington & Greene Counties, Pa.	$2.65
West Virginia	$2.59
Southeastern Ohio	$2.55

*Applies to Cochran, Franklin, Hamilton & Doolittle districts; prices in other lower districts range down to $2.88 per bbl. at well.

MICHIGAN

Posted by Pure Oil Co. (May 27, '41)

Midland, Midland County	$1.44
Sherman	$1.39

Posted by Simrall Corp. (May 27, '41)

Greendale, Porter, Vernon, Crystal & Wise	$1.44
Buckeye, Bentley, Edenville, Beaverton & Monitor (sweet crude type)	$1.42
Freeman, Redding, Lincoln & Winterfield	$1.39
West Branch-Arenac	$1.24
Hamilton-Grout	$1.29

Posted by Sohio Corp. (Mich. Div.)

Traverse crude in Allegan, Kent, Ottawa & Van Buren Cos. (June 2, '41)	$1.45
Trenton crude, Monroe Co. (June 2, '41)	$1.39

Posted by Bay Pipe Line Corp. (May 27, '41)

Saginaw & Wise	$1.41	Buckeye, Bentley & Kawkawlin	$1.42
Clare	$1.41	Adams (June 1, '41)	$1.27

ILLINOIS-INDIANA-KENTUCKY-OHIO

Posted by Sohio Corp. (May 21, '41)

Illinois Basin, including Griffin pool	$1.37
Carmi, Storms, Ill. area	$1.32
Birk City, Ky. area	$1.32
Corydon, Ky. area, Henderson	$1.32

Posted by Ohio Oil Co. (May 21, '41)

Illinois Basin	$1.37
Eastern Ill. & Western Ind.	$1.22

Posted by Carter Oil Co. (May 21, '41)

Loudon, Fayette Co. Ill.	$1.37

Posted by Mohawk Oil Lines, Inc. (May 21, '41)

Southern Illinois	$1.37

Posted by Ashland Oil & Transp. Co. Somerset oil in Ash. Lines, Ky.: (June 19, '41)

Big Sandy River	$1.38	Kentucky River	$1.43

Posted by Owensboro-Ashland Co.

Owensboro, Ky. area (May 21, '41)	$1.32

Posted by S. O. Ohio (Sept. 1, '41)

Lima, Ohio	$1.25
Cleveland, Lodi & Chatham (O.) areas	$1.30

MID-CONTINENT

OKLAHOMA-KANSAS-NORTH TEXAS

(See below for companies posting and dates)

Gravity	Schedule No. 1	Schedule No. 2	Schedule No. 3
Below 21	$0.85	$0.75	$0.81
21-21.9	.87	.78	.83
22-22.9	.89	.81	.85
23-23.9	.91	.84	.87
24-24.9	.93	.87	.89
25-25.9	.95	.90	.91
26-26.9	.97	.93	.93
27-27.9	.99	.96	.95
28-28.9	1.01	.99	.97
29-29.9	1.03	1.02	.99
30-30.9	1.05	1.05	1.01
31-31.9	1.07	1.07	1.03
32-32.9	1.09	1.09	1.05
33-33.9	1.11	1.11	1.07
34-34.9	1.13	1.13	1.09
35-35.9	1.15	1.15	1.11
36-36.9	1.17	1.17	1.13
37-37.9	1.19	1.19	1.15
38-38.9	1.21	1.21	1.17
39-39.9	1.23	1.23	1.19
40 & above	1.25	1.25	1.21

Above schedules posted by:

No. 1: **S. O. Indiana** May 20, '41 in Okla. & Kans. **Sinclair-Prairie** May 20, '41 in Okla. & Kans. beginning with 25-25.9. **Continental** May 19, '41 in Okla. & Kans. beginning with Below 29 at $1.01. **Texaco** May 19, in Okla. & Kans. beginning with 28-28.9.

No. 2: **Carter** May 20, '41 in Okla. **Shell** Dec. 5, '41 in Okla. & Kans. **Magnolia** May 21, '41 in Okla.

No. 3: All Dec. 11, '41: **Stanolind & Continental** in N. Tex. **Sinclair-Prairie** in N. Central Tex. **Magnolia & Texaco** in N. & N. Central Tex. **Continental, Magnolia & Sinclair-Prairie** schedules begin with Below 29 at $0.97. **Texaco** schedule begins with 28-28.9.

TEXAS & NEW MEXICO FIELDS

Posted by Humble Oil & Refining Co.

(May 21, '41, except Panhandle, Tex. July 9, '41 and W. Central Texas Dec. 11, '41)

Gravity	Refugio	Texas Gulf Coast	Miran-do	Ana-huac	Dick-inson	East Central Texas	West Central Texas	Pan-handle, Texas	W. Texas & New Mex.	Hawkins Texas
Below 20	$1.08	$1.06	$1.03	$0.98	$0.93	....	....	$0.73	$0.70	$0.80
20-20.9	1.10	1.08	1.05	1.00	.95	....	....	.75	.72	.82
21-21.9	1.12	1.10	1.07	1.02	.97	....	....	.77	.74	.84
22-22.9	1.14	1.12	1.09	1.04	.99	....	....	.79	.76	.86
23-23.9	1.16	1.14	1.11	1.06	1.01	....	....	.81	.78	.88
24-24.9	1.18	1.16	1.13	1.08	1.03	....	....	.83	.80	.90
25 & above	....	....	....	....	....	....	....	....	....	.92
25-25.9	1.20	1.18	1.15	1.10	1.05	$0.97	$0.91	.85	.82	....
26-26.9	1.22	1.20	1.17	1.12	1.07	.99	.93	.87	.84	....
27-27.9	1.24	1.22	1.19	1.14	1.09	1.01	.95	.89	.86	....
28-28.9	1.26	1.24	1.21	1.16	1.11	1.03	.97	.91	.88	....
29-29.9	1.28	1.26	1.23	1.18	1.13	1.05	.99	.93	.90	....
30-30.9	1.30	1.28	1.25	1.20	1.15	1.07	1.01	.95	.92	....
31-31.9	1.32	1.30	1.27	1.22	1.17	1.09	1.03	.97	.94	....
32-32.9	1.34	1.32	1.29	1.24	1.19	1.11	1.05	.99	.96	....
33-33.9	1.36	1.34	1.31	1.26	1.21	1.13	1.07	1.01	.98	....
34-34.9	1.38	1.36	1.33	1.28	1.23	1.15	1.09	1.03	1.00	....
35-35.9	1.40	1.38	1.35	1.30	1.25	1.17	1.11	1.05	1.02	....
36-36.9	1.42	1.40	1.37	1.32	1.27	1.19	1.13	1.07	1.04	....
37-37.9	1.44	1.42	1.39	1.34	1.29	1.21	1.15	1.09	1.06	....
38-38.9	1.46	1.44	1.41	1.36	1.31	1.23	1.17	1.11	1.08	....
39-39.9	1.48	1.46	1.43	1.38	1.33	1.25	1.19	1.13	1.10	....
40 & above	1.50	1.48	1.45	1.40	1.35	1.27	1.21	1.15	1.12	....

Refugio: Includes crude purchased in East White Point, Greta, Melon Creek, O'Connor-McFaddin, Plymouth, Saxet, Taft, & Tom O'Connor fields.

Texas Gulf Coast: Includes crude purchased in Amelia, Clear Lake, Goose Creek, Hastings, Magnet, Mykawa, Mykawa New, Raccoon Bend, South Thompsons, Sugarland, Thompsons, & Webster fields.

Mirando: Includes crude purchased in Blanchard, Bridwell, Colorado, Comitas, Eagle Hill, Escobas, Fitzsimmons, Glen, Government Wells (North & South), Heyser, Hoffman, Kelsey, Kohler, Loma Novia, Lundell, Manila, Mirando Valley, Placedo, Randado, Sarnosa, & Tesoro fields.

Anahuac: Includes crude purchased in Anahuac, Angleton, Cedar Point, Fishers' Reef, Hull (Old & New), Pierce Junction, Red Fish Reef, & Turtle Bay fields.

Dickinson: Includes crude purchased in Dickinson, Gilloc, Hardin, League City, & Rowan fields.

East Central Texas: Includes crude purchased in Anderson, Cherokee, Limestone, & Navarro Counties, and Navarro Crossing field.

West Central Texas: Includes crude purchased in Brown, Callahan, Comanche, Eastland, Fisher, Haskell, Jones, Shackelford, Stephens, & Throckmorton Counties.

Panhandle, Texas: Includes crude purchased in Carson, Gray, Hutchinson & Wheeler Counties.

West Texas & New Mexico: Includes crude purchased in Andrews, Crane, Crockett, Ector, Gaines, Glasscock, Howard, Reagan, Upton, Winkler, & Yoakum Counties, Texas; Lea County, N. M.

Hawkins: Includes crude purchased in Hawkins Field, Wood County, Texas.

Conroe	$1.43	**East Texas & Flag Lake**	$1.25	**Clark, Zoboroski**	$1.14
Tomball	1.40	**Flour Bluff, E. Flour Bluff**	1.33	**Alice, Benavides (N. Sweden), Sun**	1.35
Van	1.08	**Salt Flat, N. Salt Flat**	1.14	**Ben Bolt, Clark-Muil, Tom Graham**	1.35
Talco	0.79	**Darst Creek, Hilbig, Carroll**	1.14	**Yates (Pecos)**	0.95
				La Rosa	1.33

MAGNOLIA PETROLEUM CO.

(May 21, '41)

Panhandle, Tex.—(July 9, '41)—Same as Humble except Magnolia begins with below 29 at $0.91.

West Texas—In Crane, Upton, Howard, Glasscock, Mitchell, Winkler, Cochran, Hockley, Yoakum & Gaines Cos.—Same as Humble except Magnolia begins with Below 25 at $0.80.

N. Mexico—In Lea Co.—Same as Humble except Magnolia begins with Below 25 at $0.88 & ends with 36 & above at $1.04.

Cass & Panola Cos., Tex.—Below 25 at $0.88, plus 2c per degree of gravity to 40 & above at $1.20.

Mirando, Tex.—Same as Humble.

East Texas	$1.25	**Lytton Springs**	$1.17
Darst Creek	1.14	**Cleveland-Liberty**	
Luling	1.05	**Co.**	1.26
Talco	.79	**Tomball**	1.40

SINCLAIR-PRAIRIE OIL MARKETING CO.

Texas Panhandle—(May 23, '41)—Same as Humble except Sinclair-Prairie begins with Below 25 at $0.83.

West Texas & New Mexico—(May 30, '41)—Same as Humble except Sinclair-Prairie begins with Below 25 at $0.80.

Texas Gulf Coast—(May 21, '41)—Same as Humble.

Mexia District, Texas—(May 30, '41)—Same as Humble, East Central Texas, except Sinclair-Prairie also posts Below 25 at $0.95.

East Texas—(May 21, '41)	$1.25
Long Lake, Texas—(May 21, '41)	$1.23
Chapel Hill (Washington Co.) Tex.:	
Below 50 grav. (Jan. 20, '42)	$1.18
50 grav. & above (Feb. 2, '42)	$1.25

STANOLIND OIL PURCHASING CO.

(May 21, '41)

Clinton, Tex.—Same as Humble Tex. Gulf Coast except Stanolind begins with Below 21 at $1.08.

Fairbanks, N. Houston & Rosslyn, Tex.—Same as Humble Dickinson schedule.

E. Texas..$1.25 **Satsuma & Tomball, Tex.**..$1.40

STANOLIND OIL & GAS CO.

(May 21, '41)

W. Beaumont & Spindletop (Jefferson Co., Tex.) **& High Island** (Galveston Co., Tex.)—Same as Humble Tex. Gulf Coast.

Hendrick & Henderson (Winkler Co., Tex.)—Same as Humble West Texas except Stanolind begins with Below 26 at $0.82.

Jay Welder (Calhoun Co., Tex.)—Nov. 14, '41—Same as Humble Anahuac.

THE TEXAS CO.

(May 21, '41)

Panhandle, Tex.—Same as Humble except Texaco begins with 34-34.9 at $1.03.

W. Texas & Lea Co., N. M.—Same as Humble except Texaco posts $0.78 for 23.9 & below and ends with 36 & above at $1.04.

Texas Gulf Coast—Same as Humble except Texaco ends with 34 & above at $1.36.

Duval, Mirando, Tex.—Same as Humble Mirando except Texaco ends with 28-28.9 at $1.21.

Refugio, Tex.—Same as Humble except Texaco ends with 28-28.9 at $1.26.

East Texas	$1.25	**Conroe, Tex.**	$1.43
Darst Creek, Tex.	$1.14	**Hockley & Cochran Cos., Tex.**	.87

SHELL OIL CO., INC.

(May 20, '41)

West Texas & Lea Co., N. M.—Same as Humble except Shell ends with 36 & above at $1.04.

Fisher Co., Tex.—(Dec. 11, '41)—Same as Humble W. Central Texas except Shell begins with Below 25 at $0.89.

East Texas	$1.25
Livingston field, Polk Co., Tex.	$1.25
Pecos Co., Texas (except Yates Shallow Pool)	.95
Pecos Co., Tex., Yates Shallow Pool	.82
Mercy field, San Jacinto Co., Tex. (Feb. 27, '42)	1.25

CONTINENTAL OIL CO.

Carson & Hutchinson Cos., Tex.—(July 9, '41)—Same as Humble Panhandle except Continental begins with Below 29 at $0.91.

Mirando, Tex.—(July 1, '41)—Same as Humble.

Wade City & Clara Driscoll, Tex.—(July 1, '41)—Same as Humble Refugio.

Alfred & Magnolia City, Tex.—(May 21, '41), $1.35

Eddy Co., N. M.—(May 30, '41)—Same as Humble N. M. schedule except Continental begins with Below 29 at $0.88.

PAN AMERICAN PRODUCTION CO.

(May 21, '41)

Hastings & S. Houston, Tex.—Same as Humble Tex. Gulf Coast except Pan Am. begins with Below 21 at $1.08.

Gillock, Tex.—Same as Humble Dickinson except Pan. Am. begins with Below 21 at $0.95.

East Texas	$1.25
Cayuga, Tex.	.90
Goodrich, Tex. (Dec. 1, '41)	1.20

CRUDE OIL PRICES

Prices in $ per bbl. of 42 U. S. gals. at the well. A. P. I. gravity. Prices are effective as of 7 a. m. of dates shown.

CALIFORNIA

Posted by S. O. California, May 23, 1941

All gravities above those quoted take highest price offered in that field

Gravity	Signal Hill (Long Beach)	Wilmington	El Segundo	Seal Beach	Huntington Beach	Inglewood	Olinda Brea Canon	Athens-Rosecrans	Torrance	Richfield	Whittier East Coyote (La Habra)	Montebello	West Coyote Hills	Santa Fe Springs	Greeley, Canal, Wasco	Colea Levee	Mountain View	Elk Hills, Buena Vista Hills, Midway-Sunset, Lakeview Area	Lost Hills	Coalinga	Gravity
14-14.9	....	$0.68	....	....	$0.71	....	$0.70	....	$0.70	$0.70	$0.70	$0.72	....	....	....	....	....	$0.73	$0.73	$0.73	14-14.9
15-15.9	....	.71	....	....	.75	$0.76	.72	....	.72	.71	.72	.72	....	....	....	....	....	.73	.73	.73	15-15.9
16-16.9	....	.74	$0.79	....	.79	.79	.75	....	.74	.73	.75	.73	....	....	....	....	....	.73	.75	.73	16-16.9
17-17.9	....	.78	.82	....	.82	.82	.78	....	.77	.76	.78	.73	....	....	....	....	....	.75	.78	.73	17-17.9
18-18.9	$0.80	.82	.86	....	.86	.85	.81	....	.80	.79	.82	.74	....	....	....	....	....	.78	.81	.73	18-18.9
19-19.9	.84	.86	.90	....	.89	.88	.85	....	.83	.82	.85	.77	....	....	....	....	$0.73	.81	.84	.75	19-19.9
20-20.9	.88	.90	.94	....	.93	.92	.88	....	.86	.85	.89	.80	....	....	....	....	.76	.85	.87	.77	20-20.9
21-21.9	.92	.94	.98	....	.96	.95	.91	....	.89	.89	.92	.84	....	....	....	....	.79	.90	.90	.80	21-21.9
22-22.9	.96	.98	1.02	$0.88	.99	.98	.95	....	.93	.93	.96	.87	....	....	....	....	.83	.94	.93	.83	22-22.9
23-23.9	1.00	1.02	1.05	.92	1.02	1.01	.98	....	.97	.98	1.00	.91	....	....	....	....	.87	.99	.96	.86	23-23.9
24-24.9	1.03	1.06	1.07	.97	1.05	1.04	1.01	....	1.01	1.02	1.03	.94	$0.99	....	....	....	.90	1.03	.99	.89	24-24.9
25-25.9	1.07	1.09	1.10	1.01	1.08	1.07	1.04	....	1.05	1.06	1.07	.98	1.02	....	....	....	.94	1.07	1.01	.92	25-25.9
26-26.9	1.11	1.12	1.12	1.06	1.11	1.10	1.08	....	1.09	1.10	1.11	1.01	1.06	....	....	....	.97	1.11	1.04	.95	26-26.9
27-27.9	1.15	1.15	1.15	1.10	1.14	1.14	1.11	....	1.13	....	1.15	1.05	1.10	$1.04	....	....	1.01	1.15	1.07	.98	27-27.9
28-28.9	1.18	1.18	1.17	1.15	1.17	1.17	1.14	....	1.17	....	....	1.08	1.13	1.08	....	....	1.04	1.19	1.10	1.00	28-28.9
29-29.9	1.20	1.21	....	1.19	1.20	1.20	....	$1.17	....	....	....	1.12	1.17	1.12	....	....	1.07	1.24	1.13	1.02	29-29.9
30-30.9	1.23	1.24	....	....	1.23	1.22	....	1.21	....	Elwood	....	1.15	1.21	1.15	$1.01	$1.09	1.10	1.28	1.16	1.04	30-30.9
31-31.9	....	....	....	....	....	1.24	....	1.25	....	Terrace	....	1.19	1.24	1.19	1.04	1.12	1.14	....	....	1.06	31-31.9
32-32.9	....	....	....	....	....	....	....	1.29	....	F.o.b. Ship	....	1.23	1.28	1.23	1.07	1.14	1.17	....	....	1.09	32-32.9
33-33.9	....	....	....	....	....	....	....	1.32	....	$1.22	....	1.27	....	1.26	1.10	1.17	....	....	....	1.11	33-33.9
34-34.9	Kettleman Hills				....	....	....	1.36	....	1.25	....	1.31	....	1.30	1.13	1.20	....	....	....	1.13	34-34.9
35-35.9	....	$1.23	....	....	....	....	....	....	....	1.28	....	1.35	....	....	1.16	1.22	....	....	....	....	35-35.9
36-36.9	....	1.26	....	....	....	....	....	....	....	....	....	1.39	....	....	1.19	1.25	....	....	....	....	36-36.9
37-37.9	....	1.29	....	....	....	....	....	....	....	....	....	1.43	....	....	1.22	....	....	....	....	....	37-37.9
38-38.9	....	....	....	....	....	....	....	....	....	....	....	1.47	....	....	1.25	....	....	....	....	....	38-38.9
39-39.9	....	....	....	....	....	....	....	....	....	....	....	1.51	....	....	....	....	....	....	....	....	39-39.9
40-40.9	....	....	....	....	....	....	....	....	....	....	....	1.53	....	....	....	....	....	....	....	....	40-40.9

Playa Del Rey: (FOB Standard Pipe Line) 20-20.9, $0.80; 21-21.9, $0.84; 22-22.9, $0.87.
Wheeler Ridge: 22-22.9, $0.76; 23-23.9, $0.80; 24-24.9, $0.83.
Newhall, Kern River, Kern Front, McKittrick & Round Mountain: 14-14.9, $0.73.

LOUISIANA-ARKANSAS

Posted by S. O. Louisiana, May 22, '41

Gravity	Atlanta, Ark. et al.	De Soto, La. et al.	Rodessa, La. et al.	Bunkie, La. et al.	Darrow, La. et al.	University, La. (Baton Rouge)
40 & above	$1.08	$1.18	$1.20	$1.30	$1.30	....
39-39.9	1.06	1.16	1.18	1.28	1.28	....
38-38.9	1.04	1.14	1.16	1.26	1.26	....
37-37.9	1.02	1.12	1.14	1.24	1.24	....
36-36.9	1.00	1.10	1.12	1.22	1.22	....
35-35.9	.98	1.08	1.10	1.20	1.20	....
35 & above	....	....	....	....	....	$1.36
34-34.9	.96	1.06	1.08	1.18	1.18	1.34
33-33.9	.94	1.04	1.06	1.16	1.16	1.32
32-32.9	.92	1.02	1.04	1.14	1.14	1.30
31-31.9	.90	1.00	1.02	1.12	1.12	1.28
30 & below	....	....	....	....	....	1.26
30-30.9	.88	.98	1.00	1.10	1.10	....
29-29.9	.86	.96	.98	1.08	1.08	....
28-28.9	.84	.94	.96	1.06	1.06	....
27-27.9	.82	.92	.94	1.04	1.04	....
26-26.9	.80	.90	.92	1.02	1.02	....
25-25.9	.78	.88	.90	1.00	1.00	....
Below 25	....	.86	.88	.98	....	....
24-24.9	.76	....	.88	....	.98	....
23-23.9	.74	....	.86	....	.96	....
22-22.9	.72	....	.84	....	.94	....
21-21.9	.70	....	.82	....	.92	....
Below 21	.68	....	.80	....	.90	....

Atlanta schedule includes Buckner, Lewisville, Magnolia, Village & Schuler (Jones Sand), Ark.

De Soto schedule includes Sabine, Fouke, Homer, Miller Co., Nebo & Sugar Creek.

Rodessa schedule includes Cotton Valley & Shreveport (Cross Lake) ending with Below 25 at $0.88; Anse La Butte (Aug. 1, '41); Caddo (Oct. 15, 1941).

Bunkie schedule includes Eola, Olla, & South Olla.

Darrow schedule includes Bayou Mallet, Choctaw, Jeanerette, Lirette, N. & S. Crowley, Port Allen, Port Barre, Potash, Roanoke, & St. Martinville.

Big Creek, Dorcheat, McKamie Distillates (Sour) $1.15
Heavy Smackover Crude ..... .83
Cotton Valley Distillate (Sept. 1, '41) 1.40
Cotton Valley (Holloway Sand Crude) 1.25
Lisbon Distillate 1.20

(Continued next column)

LOUISIANA-ARKANSAS (*Cont'd*)

Posted by Shell Oil Co., Inc. (May 20, '41)

Gravity	Iowa	Roanoke	Gibson
Below 20	$0.99	$0.94	$0.89
20-20.9	1.01	.96	.91
21-21.9	1.03	.98	.93
22-22.9	1.05	1.00	.95
23-23.9	1.07	1.02	.97
24-24.9	1.09	1.04	.99
25-25.9	1.11	1.06	1.01
26-26.9	1.13	1.08	1.03
27-27.9	1.15	1.10	1.05
28-28.9	1.17	1.12	1.07
29-29.9	1.19	1.14	1.09
30-30.9	1.21	1.16	1.11
31-31.9	1.23	1.18	1.13
32-32.9	1.25	1.20	1.15
33-33.9	1.27	1.22	1.17
34 & above	1.29	1.24	1.19

Iowa schedule includes Black Bayou & White Castle La. fields.

Roanoke schedule includes Chalkley, La. field.

Gibson schedule includes S. Houma, Hester & W. Lake Verret, La. fields.

Happytown field, St. Martin Par., La. $1.15

Posted by Arkansas Fuel Oil Corp.
Urania, La. (May 22, '41) $1.15

Posted by Continental Oil Co. (May 21, '41)
Tepetate, La. $1.18
Ville Platte, La. 1.20
Lake Arthur, La. 1.18
Ritchie, La. (Sept. 1, '41) 1.08

Abbeville, La.

Below 36 $1.07	37-37.9 $1.11	39-39.9 $1.15
36-36.9 1.09	38-38.9 1.13	40 & above 1.17

CANADIAN FIELDS

Posted by Imperial Oil Limited
Western Ontario (Nov. 6, 1939)
Petrolia ..... $2.10 Oil Springs $2.17

Turner Valley Crude Oil (July 16, '41)
(Prices FOB producer's tankage)

33-33.9 $1.35	44-44.9 1.57	55-55.9 $1.79
34-34.9 1.37	45-45.9 1.59	56-56.9 1.81
35-35.9 1.39	46-46.9 1.61	57-57.9 1.83
36-36.9 1.41	47-47.9 1.63	58-58.9 1.85
37-37.9 1.43	48-48.9 1.65	59-59.9 1.87
38-38.9 1.45	49-49.9 1.67	60-60.9 1.89
39-39.9 1.47	50-50.9 1.69	61-61.9 1.91
40-40.9 1.49	51-51.9 1.71	62-62.9 1.93
41-41.9 1.51	52-52.9 1.73	63-63.9 1.95
42-42.9 1.53	53-53.9 1.75	64 & over 1.97
43-43.9 1.55	54-54.9 1.77	

Absorption Gasoline (July 16, '41)
90% Rec., 20 lb. Reid v.p. $2.28
90% Rec. 17 lb. Reid v.p. 2.44

ROCKY MOUNTAIN FIELDS

Posted by Stanolind Oil & Gas Co. (May 20, '41)

Salt Creek (except Tensleep crude), Midway & Dutton Creek, Wyo.

Below 29 $0.96	32-32.9 $1.04	36-36.9 $1.12	
29-29.9 .98	33-33.9 1.06	37-37.9 1.14	
30-30.9 1.00	34-34.9 1.08	38-38.9 1.16	
31-31.9 1.02	35-35.9 1.10	39-39.9 1.18	
		40 & above 1.20	

Wyoming:		Wyoming:	
Tensleep Crude	$0.6785	Grass Creek Light	$1.00
Frannie Light	.70	Grass Creek Heavy	.50
Frannie Heavy	.47	Elk Basin	1.00
Hamilton Dome	.45	Iles, Colo.	1.07

Posted by Ohio Oil Co. (May 20, '41)
Elk Basin, Wyo. $1.00
Grass Creek, Wyo., Light 1.00
Rock Creek, Wyo. 1.15
Lance Creek, Wyo., (July 1, '41) 1.12

Posted by Continental Oil Co. (May 21, '41)
Ft. Collins & Wellington, Col.

Below 29 $0.96	32-32.9 $1.04	36-36.9 $1.12	
29-29.9 .98	33-33.9 1.06	37-37.9 1.14	
30-30.9 1.00	34-34.9 1.08	38-38.9 1.16	
31-31.9 1.02	35-35.9 1.10	39-39.9 1.18	
		40 & above 1.20	

Canon City & Florence, Col.	$1.05	Big Muddy, Wyo., (May 30, '41)	$1.08
Cat Creek, Mont.	1.15	Lance Creek, Wyo., (July 1, '41)	$1.12

Posted by Independent Pipe Line Co. (Aug. 1, '41)
Falls City, Neb., field price $0.90
Falls City, Neb., loaded in tank cars 0.95
Shubert, Neb., loaded in tank cars 0.97

SOUTHEASTERN FIELDS

Posted by Allied Pipe Line Corp.
Tinsley (Miss.) Crude (Oct. 16, '41)

24-24.9	$0.745	32-32.9	$0.905
25-25.9	.765	33-33.9	.925
26-26.9	.785	34-34.9	.945
27-27.9	.805	35-35.9	.965
28-28.9	.825	36-36.9	.985
29-29.9	.845	37-37.9	1.005
30-30.9	.865	38-38.9	1.025
31-31.9	.885	39-39.9	1.045
		40 & above	1.065

Pickens (Miss.) Crude (Dec. 16, '41)

24-24.9	$0.685	32-32.9	$0.845
25-25.9	.705	33-33.9	.865
26-26.9	.725	34-34.9	.885
27-27.9	.745	35-35.9	.905
28-28.9	.765	36-36.9	.925
29-29.9	.785	37-37.9	.945
30-30.9	.805	38-38.9	.965
31-31.9	.825	39-39.9	.985
		40 & above	1.005

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These new rates were effective February 25, 1942

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PERSONALS

Dr. L. C. Beard, Jr., Socony-Vacuum Oil Co., was selected at the meeting of Committee D-2 of the American Society for Testing Materials in Cleveland, March 2-6, to be guest of honor at the 1942 annual D-2 dinner. The dinner will be held in conjunction with the annual meeting of the Society in Atlantic City, June 22-26. Dr. Beard has been active in the work of a large number of the subcommittees and technical committees of D-2.

* * *

W. O. Lindsey has been appointed sales agent for The Texas Co. in Wichita Falls, Tex. He was previously Texaco agent at Frederick, Md., and before that spent several years in the company's sales department at Washington, D. C.

* * *

Thomas R. Kurtz, manager of Shell's marketing operations department, and **Charles E. Smith,** former manager of the Baltimore division, who were naval captains in World War I, have been recalled to the service.

Mr. Kurtz, who in the last war was the youngest officer to hold the rank of captain and was Chief of Staff of Admiral Wilson, Commander of Naval Service in France, has been assigned to the staff of Admiral Adolphus Andrews of the Third Naval District. From 1921 to 1924 Mr. Kurtz was Commandant of the Naval Academy. At Shell, he will be succeeded by **P. W. Engels,** assistant operations manager.

Mr. Smith has been assigned to the Office of Chief of Naval Operations in Washington. In the last war Captain Smith had command of a destroyer flotilla and later was director of athletics at the Naval Academy. He retired from the Navy in 1930 and joined Shell as operations manager of the Boston division.

* * *

Howard D. Thompson, Los Angeles, has resigned as secretary-treasurer and as member of board of directors of Parkhill-Wade Co. to accept appointment as vice-president and general manager of Danube Oil Corp., Amarillo, Texas. Mr. Thompson is no stranger to North Texas, since prior to his connection with Parkhill-Wade he was assistant secretary-treasurer of Shamrock Oil & Gas Corp., also of Amarillo. He is married and has three children, two girls and a boy.

Sons of Standard Oil Co. of Ohio officials who have joined the armed forces include:

James Holliday, son of President **W. T. Holliday.** He is stationed at Shepard Field, Tex.

Jack Gifford, son of **H. D. Gifford,** manager of lithograph can factory, was recently accepted as an Aviation Cadet in the Marines. Gifford, who has had previous military experience, expects to get his wings in May.

David Edmunds, son of **Dr. W. P. Edmunds,** manager of public relations division, enlisted in the Air Corps on March 28th. He has not yet been called to active duty.

* * *

Lieut. George Hillis, son of **R. D. Hillis,** sales manager of Fleet Wing, has recently been transferred to the Panama Canal zone and placed in charge of malaria research.

* * *

Dr. R. E. Wilson, New York, president of Pan American, has been elected to the board of directors of the American Standards Assn. to succeed **J. Edgar Pew,** Philadelphia, vice-president of Sun.

* * *

Walter B. Phillips of Glenconner, secretary of Virginia Oil Men's Assn., was one of the first men to receive commissions at the newly established Office of Naval Officer Procurement. Mr. Phillips was appointed to rank of lieutenant and assigned to instruction duty at University of Virginia. He graduated from the Naval Academy in 1930.

* * *

J. P. Langfitt, Pure Oil Co., was named today to the subcommittee on 100-octane gasoline of the District 2 refining committee. Subcommittee has accepted resignation of **Cary R. Wagner,** now chief of process development, refining division of Office of Petroleum Co-ordinator, Washington, D. C.

* * *

Fleet Wing jobber **George Farrell,** Midway Oil Co., East Liverpool, Ohio, recently made national sports headlines, when a basketball team he sponsors, beat the much touted Oshkosh National and American champions by a score of 49 to 36 in Cleveland. This was one of the biggest basketball upsets in the history of the game.

Ralph T. Zook, Bradford, president of Sloan & Zook and a member of the Production Committee for District 1, is back at his desk after a month spent in the oil fields of Texas and Oklahoma.

* * *

Albert H. Avers, formerly with the Ottawa County Co-op Assn. at Oak Harbor, Ohio, is moving to Hicksville, Ohio, where he will be a distributor for Ohio Standard.

* * *

Newest member of the Herkimer County (New York) Gasoline Dealers' Assn. is a man whose name is well-known in oil circles: **Petroleum Co-ordinator Harold L. Ickes,** who was voted an honorary member March 3. Moreover, he has a framed plaque to prove it.

* * *

The March issue of *The Sovereign Scroll* announces new arrivals at the homes of two Kansas jobbers. **Mr. and Mrs. R. L. Bontrager,** Hutchinson, Derby jobber, are parents of a new son, and **Mr. and Mrs. Mont Wood,** Garnett, Garnett Oil Co., also are proud parents of a son.

The *Scroll* also reports that **Lawrence Eubanks,** son of **John Eubanks,** Eubanks Oil Co., Pratt, Kansas, is now serving in the U. S. Army Signal Corps.

* * *

Sam Bohlen, successful Orrville, Ohio, jobber and vice-president of Ohio Petroleum Marketers Assn., was a recent NPN visitor.

Sam was checking up on books and forms that NPN might have that would help him streamline his operations for wartime effort.

* * *

Dan Taylor, Gulf's Cleveland supervisor, was inducted in the Army on March 10th—and is now "somewhere West of the Mississippi".

* * *

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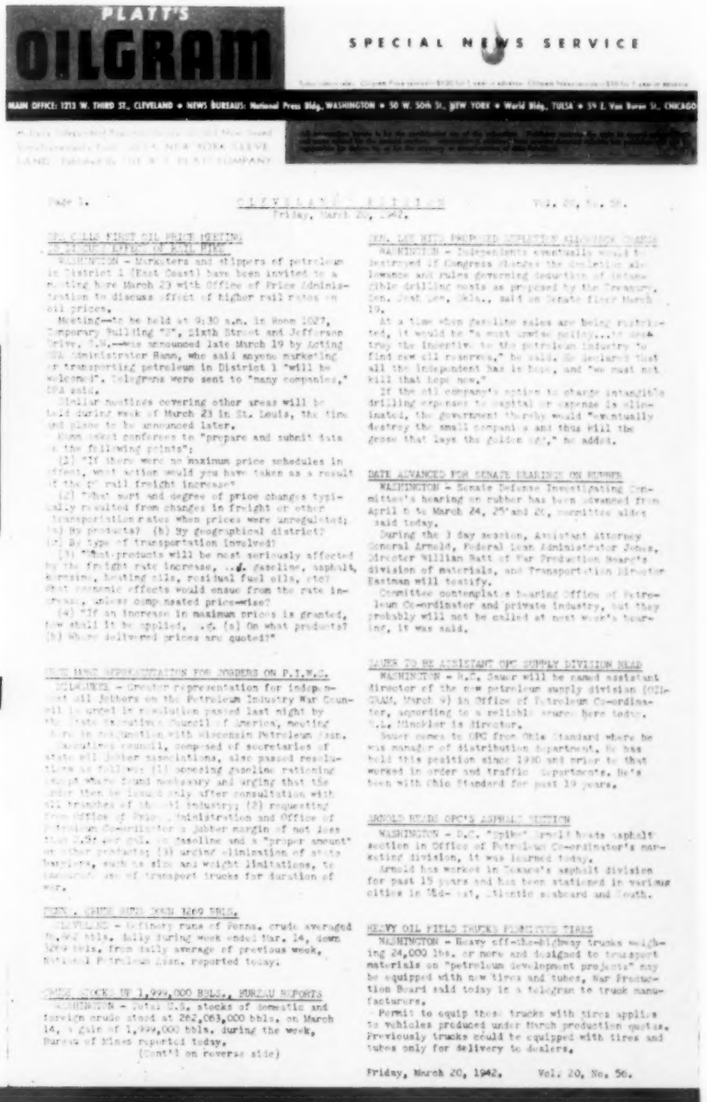
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Friday, March 20, 1942.

...ING FIRST OIL PRICE MEETING

...EFFECT OF RAIL RISE

WASHINGTON - Marketers and shippers of petroleum in District 1 (East Coast) have been invited to a meeting here March 23 with Office of Price Administration to discuss effect of higher rail rates on oil prices.

Meeting--to be held at 9:30 a.m. in Room 1027, Temporary Building "E", Sixth Street and Jefferson Drive, S.W.--was announced late March 19 by Acting OPA Administrator Bowe, who said anyone marketing or transporting petroleum in District 1 "will be welcome". Telegrams were sent to "many companies," OPA adds.

Similar meetings covering other areas will be held during week of March 23 in St. Louis, the time and place to be announced later.

Bowe asked conferees to "prepare and submit data on the following points":

(1) "If there were no maximum price schedules in effect, what action would you have taken as a result of the 20 cent rail freight increase?

(2) What sort and degree of price changes typically resulted from changes in freight or other transportation rates when prices were unregulated: (a) By products? (b) By geographical districts? (c) By type of transportation involved?

(3) "What products will be most seriously affected by the freight rate increase, ...g. gasoline, asphalt, kerosene, heating oils, residual fuel oils, etc? What economic effects would ensue from the rate increase, where comp-nsated price-wise?

(4) "If an increase in maximum prices is granted, how shall it be applied, ...g. (a) On what products? (b) Where delivered prices are quoted?"

...MAY APPROPRIATION FOR ORDERS ON P.I.W.C.

WILMINGTON - Greater representation for independent oil jobbers on the Petroleum Industry War Council is urged in resolution passed last night by the State Executive Council of America, meeting here in conjunction with Wisconsin Petroleum Assn. Executive council, composed of secretaries of state oil jobber associations, also passed resolutions as follows: (1) opposing gasoline rationing except where found necessary and urging that the order then be issued only after consultation with all branches of the oil industry; (2) requesting from Office of Price Administration and Office of Petroleum Co-ordinator a jobber margin of not less than 5.5¢ per gal. on gasoline and a "proper amount" on other products; (3) urging elimination of state barriers, such as size and weight limitations, to ...ximum use of transport trucks for duration of war.

...CRUDE RUNS OVER 3,249 BBLS.

WILMINGTON - Refinery runs of Penna. crude averaged 3,249 bbls. daily during week ended Mar. 14, down 1,274 bbls. from daily average of previous week, National Petroleum Assn. reported today.

...STOCKS IN 1,999,000 BBLS., BUREAU REPORTS

WASHINGTON - Total U.S. stocks of domestic and foreign crude stood at 262,063,000 bbls. on March 14, a gain of 1,999,000 bbls. during the week, Bureau of Mines reported today.

(Cont'd on reverse side)

...LOT WITH PROPOSED DEPLETION ALLOWANCE CHANGE

WASHINGTON - Independents essentially would be interested if Congress changes the depletion allowance and rules governing deduction of intangible drilling costs as proposed by the Treasury, Sen. Josh Lee, (Okla., said on Senate floor March 19.

At a time when fantastic sales are being ruptured, it would be "a most unwise policy...to knock the incentive to the petroleum industry to find new oil reserves," he said. He declared that all the independent has is hope, and "we must not kill that hope now."

If the oil companies option to charge intangible drilling expenses to capital or expense is eliminated, the government thereby would "eventually destroy the small companies and thus fill the graves that bays the golden ore," he added.

...DATE ADVANCED FOR SENATE HEARINGS ON RUBBER

WASHINGTON - Senate Defense Investigating Committee's hearing on rubber has been advanced from April 6 to March 24, 25 and 26, committee aides said today.

During the 3 day session, Assistant Attorney General Arnold, Federal Loan Administrator Jones, Director William Batt of War Production Board's division of materials, and Transportation Director Eastman will testify.

Committee contemplates hearing Office of Petroleum Co-ordinator and private industry, but they probably will not be called at next week's hearing, it was said.

...SAUER TO BE ASSISTANT OPC SUPPLY DIVISION HEAD

WASHINGTON - R.C. Sauer will be named assistant director of the new petroleum supply division (Oilgram, March 18) in Office of Petroleum Co-ordinator, reporting to a reliable source here today. R.A. Winckler is director.

Sauer comes to OPC from Ohio Standard where he was manager of distribution department. He has held this position since 1936 and prior to that worked in order and traffic departments. He's been with Ohio Standard for past 18 years.

...ARNOLD HEADS OPC'S ASPHALT SECTION

WASHINGTON - D.C. "Spike" Arnold heads asphalt section in Office of Petroleum Co-ordinator's marketing division, it was learned today.

Arnold has worked in Sohio's asphalt division for past 15 years and has been stationed in various cities in Mid-...st, Atlantic seaboard and South.

...HEAVY OIL FIELD TRUCKS FURNISHED TIRES

WASHINGTON - Heavy off-the-highway trucks weighing 24,000 lbs. or more and designed to transport materials on "petroleum development projects" may be equipped with new tires and tubes, War Production Board said today in a telegram to truck manufacturers.

Permit to equip these trucks with tires applies to vehicles produced under March production quotas. Previously trucks could be equipped with tires and tubes only for delivery to dealers.

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SUN
100% DISTILLED LUBRICANTS
PRE-TESTED MORE THAN 70 TIMES